



TETRA TECH RIZZO

March 7, 2008

Electronic Mail Submission (NPDES.Generalpermits@epa.gov)
US Environmental Protection Agency
RGP-NOI Processing
Municipal Assistance Unit (CMU)
One Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

**Re: Notice of Intent
NPDES Remediation General Permit
Brigham House IRA
341 Mount Auburn Street
Watertown, MA**

Dear Sir or Madam:

On behalf of Brigham House Associates, L.P., Tetra Tech, Inc. d/b/a Tetra Tech Rizzo (TTR) has prepared this Notice of Intent (NOI) for coverage under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP), Massachusetts General Permit (MAG910000). This NOI was prepared in accordance with the general requirements of the NPDES RGP under Federal Register, Volume 70, No. 147 and related guidance documentation provided by the U.S. Environmental Protection Agency (EPA).

The signed and completed NOI forms are attached to this letter. The following sections provide additional information relevant to this NOI.

Site Information

This NOI address the proposed discharge of treated water recovered from the sub-basement/crawlspace area at 341 Mount Auburn Street in Watertown, Massachusetts (the Site). On January 25, 2008, verbal notification was made to the Massachusetts Department of Environmental Protection (DEP) regarding the occurrence of oil (number 6 fuel oil) in water that had accumulated in the sub-basement/crawlspace area at the Site. The DEP subsequently issued Release Tracking Number (RTN) 3-27461 to the release and gave verbal authorization to perform an Immediate Response Action (IRA) under the Massachusetts Contingency Plan (MCP) (310 CMR 40.0000). Based on the findings of investigations conducted at the Site to date, it is believed that the oil release is associated

One Grant Street
Framingham, MA 01701
Tel 508.903.2000 Fax 508.903.2001



with the former storage and use of number 6 fuel oil (No. 6 oil). Available records indicate that a 15,000-gallon underground storage tank (UST) that contained fuel oil was removed from the Site by the Town of Watertown in 1993.

Discharge Information

This NPDES RGP NOI is for discharges from dewatering activities that are expected to be conducted commencing upon approval from EPA. Due to the IRA condition that has been identified, the discharge will need to commence as soon as EPA authorizes the discharge. The estimated start date is March 21, 2008. This discharge is associated with the implementation of an IRA to address a release of oil at the Site. It is believed that during periods of high groundwater table elevations water accumulates in the sub-basement/crawlspace area at the Site. This accumulated water will require periodic dewatering to mitigate potential for water/flood damage to the building structure. The accumulated water may be collected by the existing sub-basement sump pump and/or placement of additional sump pumps to recover water throughout the sub-basement/crawlspace area. The discharges are expected to be intermittent, and increase in frequency during high water table periods (spring/fall). Since a release of oil has been identified at the Site, the water will at a minimum require treatment to remove non-aqueous phase liquid (NAPL) oil. The maximum discharge flow rate for the facility will be 50 gallons per minute (GPM) over a 24-hour period (72,000 gallons per day).

The treated water will be discharged to an on-site drop inlet which discharges to the Town of Watertown municipal separate storm sewer system (MS4) which ultimately discharges to the Charles River. A drawing showing the approximate location of the on-site discharge point is attached to this NOI as Figure 1.

Receiving Surface Water Information

Effluent from the treatment system will be directed to the Town of Watertown MS4 with subsequent discharge to the Charles River. The Town of Watertown requires a Dewatering Drainage Permit for discharge to their MS4 system. A copy of the permit application is provided as an attachment to this NOI. At the discharge location the Charles River is designated a Class B water body pursuant to 314 CMR 4.00.

The estimated seven-day, ten-year low flow (7Q10) of the Charles River at the approximate location of the outfall was evaluated using the USGS on-line StreamStats stream flow assessment application. The value for the 7Q10 estimated using StreamStats is 22.8 ft³/s. A copy of the report generated by StreamStats is appended to this submittal.



Information regarding Total Maximum Daily Load (TMDL) applicable to the Charles River was evaluated via a review of the listings published in the on-line EPA database. There are no approved TMDLs for the receiving surface water. The Charles River is listed Category 5 water requiring a TMDL for unknown toxicity; priority organics; metals; nutrients; organic enrichment/low dissolved oxygen; pathogens; oil and grease; taste, odor and color; noxious aquatic plants; and turbidity.

Contaminant Information

The contaminant information presented in this NOI is based on our evaluation of a sample collected from the proposed influent (untreated water) that has accumulated in the sub-basement/crawlspace area at the Site. A release of No. 6 fuel oil at the Site has resulted in the presence of NAPL oil in the form of globules and streaks upon the surface of the water that enters the sub-basement/crawlspace area on the north side of the building. The water sample was collected from the accumulated water within the sub-basement/crawlspace. Based on the results of laboratory analysis of the accumulated water, the NAPL oil has a limited solubility in the aqueous state. Accordingly, the primary concern is NAPL oil that may accumulate at the surface of the standing water.

Based on a review of the analytical data from a sample of the proposed influent, the following NPDES RGP listed pollutants have been detected:

- Total Suspended Solids (TSS): 5 mg/L
- Total Residual Chloride (TRC): 45 µg/L

Treatment System Information

The recovered water will require treatment to remove NAPL oil, with subsequent treatment to address elevated concentrations of TSS and TRC. In general, the treatment will most often be conducted as a batch process, the water will be removed from the sub-basement area, and treated to remove NAPL oil, TSS and TRC and then discharged to the on-site discharge point (drop inlet). The control of NAPL oil will be performed pursuant to the IRA Plan which will include pumping the oil-impacted water into drums or other storage containers (up to 21,000-gallons in volume) with temporary on-site storage for up to 120-days. Within the 120-day period NAPL oil will be removed via physical processes (separation and/or adsorption onto sorbent material (pads)). The accumulated NAPL oil will be segregated and containerized for management as Remediation Waste under the IRA. The storage of water is also intended to provide settlement to remove TSS. Following NAPL oil removal and settling to remove TSS, the residual water may contain elevated concentrations of TRC. A manual dechlorination step is included to treat



elevated TRC to meet effluent limits using ascorbic acid (Vitamin C) or calcium thiosulfate tablets. These dechlorination chemicals will be applied pursuant to the manufacturer's directions (ratio of 2.5:1 for ascorbic acid) to remove TRC. A Material Safety Data Sheet (MSDS) for these two chemicals is provided with the NOI.

As a contingency the treatment system may also include filtration and adsorption to provide additional treatment prior to discharge. The water may be pumped through filtration units equipped with 10-micron to 25-micron bag filters to remove excessive TSS. Following particulate removal, the water may also be pumped through two appropriately sized (400 pound to 2,000-pound) granular activated carbon (GAC) units connected in series. The treatment system provider has designed the treatment system for flows up to 50 GPM (using 2,000-pound GAC units) lesser flows can be treated with 400 pound GAC units. The treatment system will have sample ports to collect water samples from the system influent, midpoint and effluent. A flow meter (totalizer and instantaneous flow meter) will also be installed at the effluent of the treatment system. A general treatment system diagram is included as an attachment to the NOI.

Consultation with State/Federal Services

The listed Areas of Critical Environmental Concern in Massachusetts and the Endangered Species list provided in Appendix I and Appendix II of the NPDES RGP were reviewed to determine whether federally-listed endangered or threatened species or critical habitats are present at the Site or in the vicinity of the discharge. In addition, a review of the National Heritage and Endangered Species Program (NHESP) on-line database (GIS data) provided by MassGIS was reviewed to identify Endangered or Threatened Species, Essential Fish Habitat or other Critical Habitat. The results of this research were compared with the requirements identified in Appendix VII of the NPDES RGP. The results of this review identified the following:

- No Federally-listed species are located in Watertown or proximate to the proposed discharge; and
- No Federally-listed Critical Habitat areas are located in Watertown or proximate to the proposed discharge.

Considering the above findings and pursuant to Appendix VII of the NPDES RGP, this facility meets the permit eligibility criteria under "Criteria A" for coverage under the NPDES RGP since no Federally listed Endangered or Threatened Species, or Critical Habitat are located in proximity to the point where the proposed discharge reaches the receiving surface water body, and consultation with federal and/or state officials is not necessary at this time.



The listed National Historic Places (NHP) in proximity to the discharge were reviewed using the electronic data base provided by the U.S. National Parks Service (NPS) website. In addition a Site visit was performed by TTR personnel to observe the Site and the potential for impact to listed properties. The results of this review identified the following:

- Although there are properties listed by the NPS in the Town of Watertown, the majority are buildings or other permanent land-bound structures that are not located in the path of the discharge or in an area that will be impacted by the groundwater treatment activities at the Site. The groundwater treatment activities will not involve new construction that could potentially affect these listed properties; and
- The 341 Mount Auburn Street property is a NHP listed property (Old Watertown High School). However, the proposed groundwater treatment activities are being conducted to mitigate a release of oil at the property which will benefit the listed property. In addition, dewatering is necessary to mitigate the potential for flooding or other water damage to the property.

It is believed that the treatment and discharge of water at the Site will not cause damage, deterioration, alteration or destruction of any historic property listed by the NPS or eligible for listing. Further, we do not believe that the additional flows from the discharge to the Charles River will adversely impact the historic properties. Pursuant to Appendix VII of the NPDES RGP, this facility meets the permit eligibility criteria for coverage under the NPDES RGP, and consultation with federal and/or state officials is not necessary at this time.

Request for Coverage Under NPDES RGP

In consideration of the nature of this discharge and the requirements of the NPDES RGP, it is our opinion that the subject discharge is eligible for coverage under the NPDES RGP. Brigham House Associates, L.P. requests coverage under the NPDES RGP for the discharge of recovered water to the surface waters of the Charles River.

The attached NOI form provides the requisite information pertaining to this NOI and the appropriate signature of the facility Operator/Owner (Brigham House Associates, L.P.). In accordance with Part 1 B of the NPDES RGP, the Owner is considered "Operator" of the subject facility. TTR has been subcontracted to the Owner/Operator as an environmental consultant to aid in the preparation of this NOI. However, additional "Operators" may be designated in the future and EPA will be notified by submittal of such an administrative change via a Notice of Change. The Owner/Operator or



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subsequently-designated Operators shall be responsible for any enforcement action taken or imposed by federal, state or local agencies.

Pending authorization from the EPA, discharge of treated water is scheduled to begin on or about March 21, 2008 an end date for the discharge has not been determined, however it is expected that discharge will continue as needed until the IRA can be closed with DEP.

Questions or correspondence regarding the subject discharge should be directed through Mr. Andrew Burns who may be contacted at (781) 762-4800. Please contact the undersigned at (508) 903-2000 if you have any questions regarding this NOI.

Very truly yours,

Ian S. Cannan
Project Scientist

Robert J. Ankstitus, P.E., L.S.P.
Senior Project Manager

CC: Town of Watertown, Department of Public Works
Massachusetts Department of Environmental Protection

P:\PRE-FY2008\12701000\12701003\REPORTS\NPDES.RGP\2008-03-05(NPDES.RGP).DOC

B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit

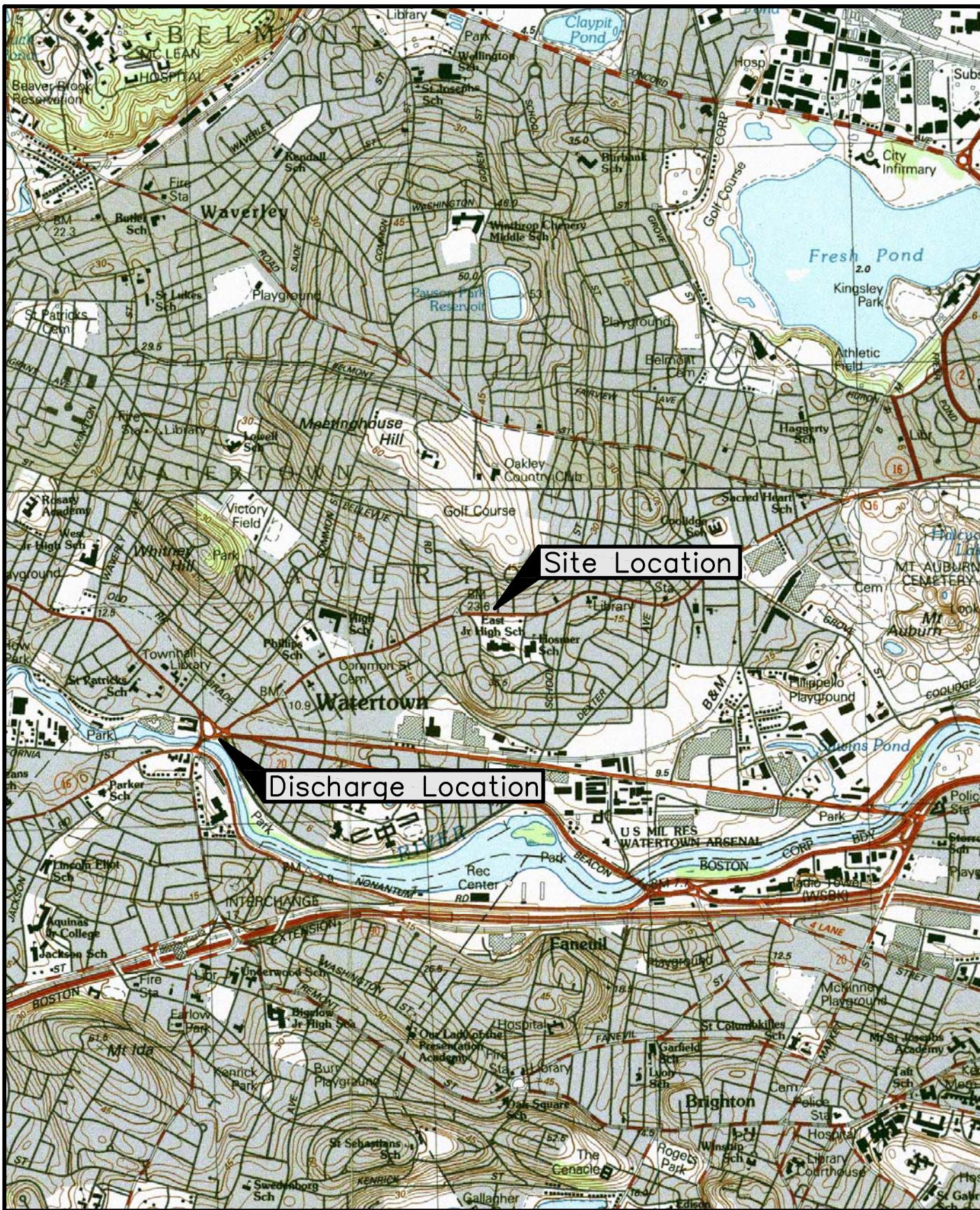
1. General site information. Please provide the following information about the site:

a) Name of facility/site: Brigham House IRA		Facility/site address:	
Location of facility/site: longitude: <u>-71.169937</u> latitude: <u>42.370139</u>	Facility SIC code(s): 1522	Street: 341 Mount Auburn Street	
b) Name of facility/site owner: Brigham House Associates, L.P.		Town: Watertown	
Email address of owner: mschwendenman@hallkeen.com	State: MA	Zip: 02472	County: Middlesex
Telephone no. of facility/site owner: (617) 923-7779	Owner is (check one): 1. Federal <input type="checkbox"/> 2. State/Tribal <input type="checkbox"/> 3. Private <input checked="" type="checkbox"/> 4. other, if so, describe:		
Fax no. of facility/site owner: (617) 923-6239			
Address of owner (if different from site):			
Street: 320 Norwood Park South			
Town: Norwood	State: MA	Zip: 02062	County: Norfolk
c) Legal name of operator: Brigham House Associates, L.P.	Operator telephone no: (781) 762-4800		
	Operator fax no.: (781) 762-4841	Operator email: aburnes@HALLKEEN.com	
Operator contact name and title: Andrew Burnes			
Address of operator (if different from owner):		Street:	
Town:	State:	Zip:	County:
d) Check "yes" or "no" for the following:			
1. Has a prior NPDES permit exclusion been granted for the discharge? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> , if "yes," number:			
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> , if "yes," date and tracking #:			
3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
4. For sites in Massachusetts, is the discharge covered under the MA Contingency Plan (MCP) and exempt from state permitting? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			

<p>e) Is site/facility subject to any State permitting or other action which is causing the generation of discharge? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>If "yes," please list:</p> <p>1. site identification # assigned by the state of NH or MA: 3-27461</p> <p>2. permit or license # assigned: Immediate Response Action</p> <p>3. state agency contact information: name, location, and telephone number: MassDEP, NERO, Mr. Ken Sanderson (978) 694-3200</p>	<p>f) Is the site/facility covered by any other EPA permit, including:</p> <p>1. multi-sector storm water general permit? Y <input type="checkbox"/> N <input checked="" type="checkbox"/>, if Y, number:</p> <p>2. phase I or II construction storm water general permit? Y <input type="checkbox"/> N <input checked="" type="checkbox"/>, if Y, number:</p> <p>3. individual NPDES permit? Y <input type="checkbox"/> N <input checked="" type="checkbox"/>, if Y, number:</p> <p>4. any other water quality related permit? Y <input type="checkbox"/> N <input checked="" type="checkbox"/>, if Y, number:</p>
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2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:	
discharge of water recovered from basement sump	
<p>b) Provide the following information about each discharge:</p>	<p>1) Number of discharge points: 1</p> <p>2) What is the maximum and average flow rate of discharge (in cubic feet per second, ft³/s)? Max. flow <u>0.1114</u> Average flow <u>0.1114</u> Is maximum flow a design value? Y <input checked="" type="checkbox"/> N <input type="checkbox"/> For average flow, include the units and appropriate notation if this value is a design value or estimate if not available.</p>
<p>3) Latitude and longitude of each discharge within 100 feet: pt.1: long. <u>-71.169937</u> lat. <u>42370139</u>; pt.2: long. _____ lat. _____; pt.3: long. _____ lat. _____; pt.4: long. _____ lat. _____; pt.5: long. _____ lat. _____; pt.6: long. _____ lat. _____; pt.7: long. _____ lat. _____; pt.8: long. _____ lat. _____; etc.</p>	
<p>4) If hydrostatic testing, total volume of the discharge (gals):</p>	<p>5) Is the discharge intermittent <input checked="" type="checkbox"/> or seasonal _____? Is discharge ongoing Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>?</p>
<p>c) Expected dates of discharge (mm/dd/yy): start <u>03/21/08</u> end <u>unknown at this time</u></p>	
<p>d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).</p>	



Project No. #12701003



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Information obtained from
USGS Map of Watertown, Massachusetts
Quadrangle dated 1987



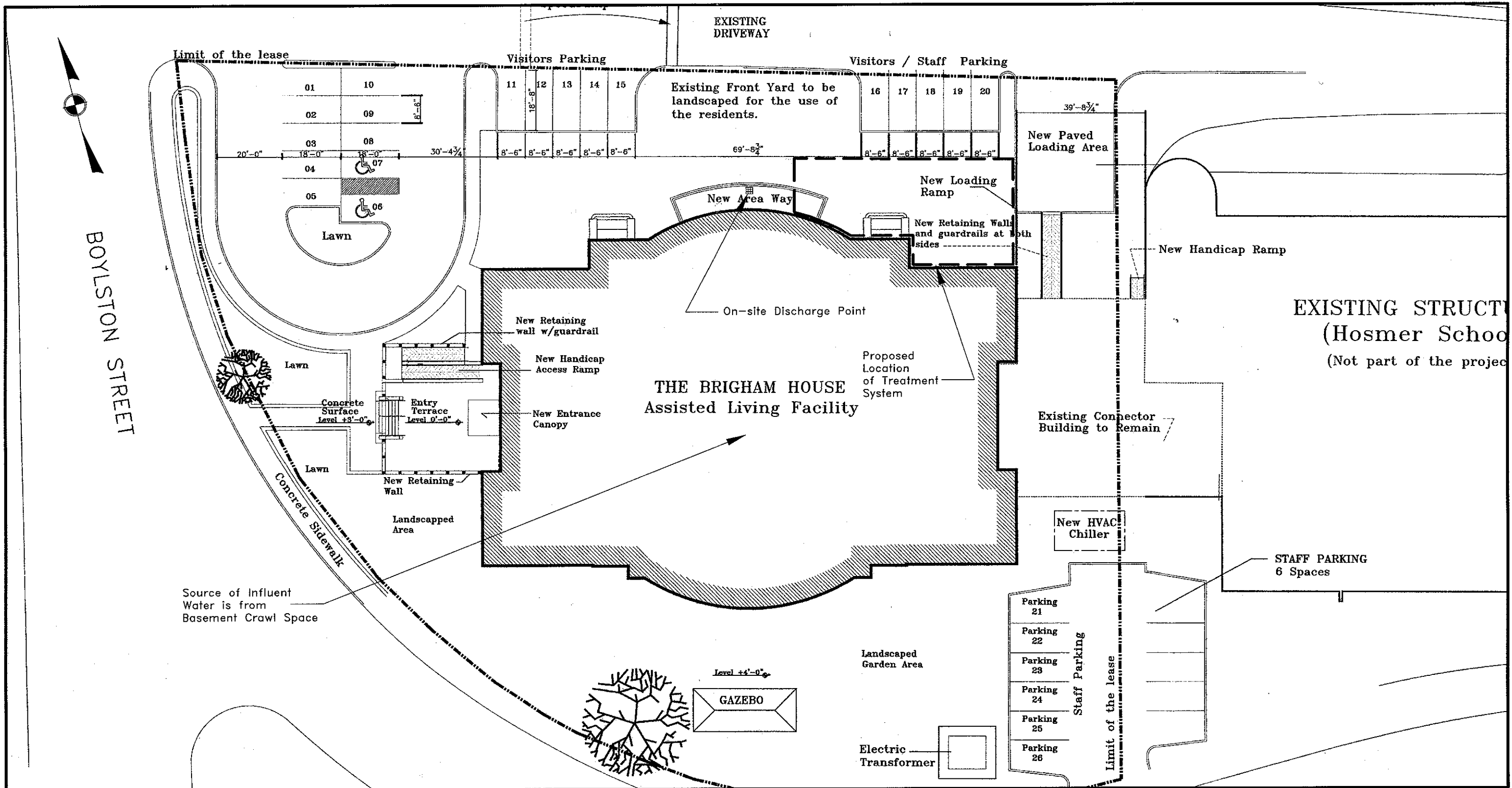
0 2,000 Feet

NPDES RGP
341 MOUNT AUBURN STREET
WATERTOWN, MA

Site Locus Map

Figure

1



P:\Pre-FY2008\12701000\12701003\Building Plans\1003-SP1.dwg



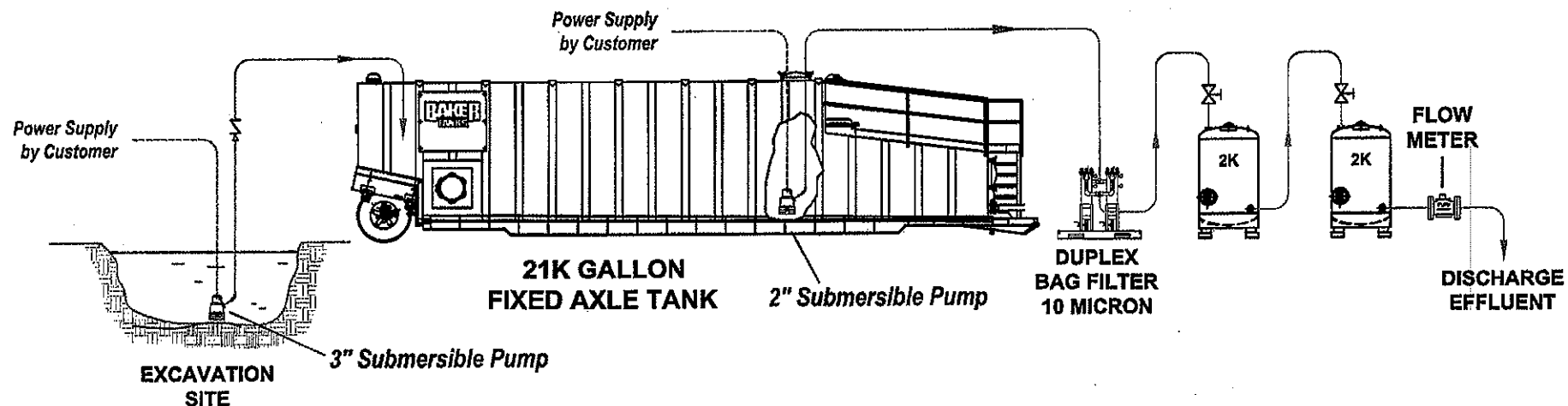
Note: Site Plan based on The Architectural Team, Inc.
Property Line Plan, Sheet A1.02 dated November 30, 2001



NPDES RGP
341 MOUNT AUBURN STREET
WATERTOWN, MA

SITE PLAN

Figure
2



Notes

1. System shown is a possible layout (conceptual). Actual installed layout may vary from that shown here depending on ultimate customer requirements and location restrictions.

2. No specific installation details are to be implied from this drawing.

The designs, information and data contained herein is proprietary and is submitted in confidence and shall not be disclosed, used or duplicated in whole or in part for any purpose whatsoever without prior written permission from Baker Corp. This document shall be returned to Baker Corp. on its demand. Receipt of this document shall be deemed to be an acceptance of the conditions specified herein.

TOLERANCE:
Fractions: $\pm 1/16$
Decimals: ± 0.001 $\pm 1/32$
Angles: $\pm 0^{\circ}30'$
Bends: $\pm 2^{\circ}$

MATERIAL:

FINISH:

BAKER CORP. 3020 OLD RANCH PARKWAY
SEAL BEACH, CA 90740-2751

TITLE:

70 GPM PROCESS FLOW DIAGRAM

CUSTOMER:

JOB No: _

DWG BY: J. GONZALEZ

DATE:

SCALE: NOTES

SHEET: 1 OF: 1

CKD BY: PAUL TIBBETTS

DATE:

DWG No: G9M0263

REV: _

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts' regulations 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E"); ii. New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed.

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals	Urban Fill Sites	Contaminated Sumps ✓	Mixed Contaminants	Aquifer Testing
Fuel Oils (and ✓ Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites ✓	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		✓	1	grab	SM2540D	5.00	5.00	1.36		
2. Total Residual Chlorine		✓	1	grab	Hach 8167	0.020 mg/l	45	1.23E-2		
3. Total Petroleum Hydrocarbons	✓		1	grab	1664	1.0 mg/l	0	0	0	0
4. Cyanide	✓		1	grab	335.4	0.0100 mg/l	0	0	0	0
5. Benzene	✓		1	grab	624	1.0 ug/l	0	0	0	0
6. Toluene	✓		1	grab	624	1.0 ug/l	0	0	0	0
7. Ethylbenzene	✓		1	grab	624	1.0 ug/l	0	0	0	0
8. (m,p,o) Xylenes	✓		1	grab	624	2.0 ug/l and 1.0 ug/l	0	0	0	0
9. Total BTEX ⁴	✓		1	grab	624	see above	0	0	0	0

⁴BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide ⁵ (1,2- Dibromo-methane)	✓		1	grab	504.1	0.0100 ug/l	0	0	0	0
11. Methyl-tert-Butyl Ether (MtBE)	✓		1	grab	624	1.0 ug/l	0	0	0	0
12. tert-Butyl Alcohol (TBA)	✓									
13. tert-Amyl Methyl Ether (TAME)	✓									
14. Naphthalene	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
15. Carbon Tetra-chloride	✓		1	grab	624	1.0 ug/l	0	0	0	0
16. 1,4 Dichlorobenzene	✓		1	grab	624	1.0 ug/l	0	0	0	0
17. 1,2 Dichlorobenzene	✓		1	grab	624	1.0 ug/l	0	0	0	0
18. 1,3 Dichlorobenzene	✓		1	grab	624	1.0 ug/l	0	0	0	0
19. 1,1 Dichloroethane	✓		1	grab	624	1.0 ug/l	0	0	0	0
20. 1,2 Dichloroethane	✓		1	grab	624	1.0 ug/l	0	0	0	0
21. 1,1 Dichloroethylene	✓		1	grab	624	1.0 ug/l	0	0	0	0
22. cis-1,2 Dichloro-ethylene	✓		1	grab	624	1.0 ug/l	0	0	0	0
23. Dichloromethane (Methylene Chloride)	✓		1	grab	624	10.0 ug/l	0	0	0	0
24. Tetrachloroethylene	✓		1	grab	624	1.0 ug/l	0	0	0	0

⁵EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane	✓		1	grab	624	1.0 ug/l	0	0	0	0
26. 1,1,2 Trichloroethane	✓		1	grab	624	1.0 ug/l	0	0	0	0
27. Trichloroethylene	✓		1	grab	624	1.0 ug/l	0	0	0	0
28. Vinyl Chloride	✓		1	grab	624	1.0 ug/l	0	0	0	0
29. Acetone	✓		1	grab	624	20.0 ug/l	0	0	0	0
30. 1,4 Dioxane	✓									
31. Total Phenols	✓		1	grab	8270C	2.78 to 5.56 ug/l	0	0	0	0
32. Pentachlorophenol	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
33. Total Phthalates ⁶ (Phthalate esters)	✓									
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	✓									
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	✓		1	grab	8270C	see below	0	0	0	0
a. Benzo(a) Anthracene	✓		1	grab	8270C	2.78 ug/l				
b. Benzo(a) Pyrene	✓		1	grab	8270C	2.78 ug/l				
c. Benzo(b) Fluoranthene	✓		1	grab	8270C	2.78 ug/l				
d. Benzo(k) Fluoranthene	✓		1	grab	8270C	2.78 ug/l				
e. Chrysene	✓		1	grab	8270C	2.78 ug/l	0	0	0	0

⁶The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
f. Dibenzo(a,h) anthracene	✓		1	grab	8270C	2.78 ug/l				
g. Indeno(1,2,3-cd) Pyrene	✓		1	grab	8270C	2.78 ug/l				
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
h. Acenaphthene	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
i. Acenaphthylene	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
j. Anthracene	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
k. Benzo(ghi) Perylene	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
l. Fluoranthene	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
m. Fluorene	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
n. Naphthalene-	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
o. Phenanthrene	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
p. Pyrene	✓		1	grab	8270C	2.78 ug/l	0	0	0	0
37. Total Polychlorinated Biphenyls (PCBs)	✓		1	grab	608	0.211 ug/l	0	0	0	0
38. Antimony	✓									
39. Arsenic	✓		1	grab	200.7	0.0040 mg/l	0	0	0	0
40. Cadmium	✓		1	grab	200.7	0.0025 mg/l	0	0	0	0
41. Chromium III	✓		1	grab	200.7	0.0080 mg/l	0	0	0	0
42. Chromium VI	✓		1	grab	SM3500CrD	0.008 mg/l	0	0	0	0

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
44. Lead	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
45. Mercury	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
46. Nickel	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
47. Selenium	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
48. Silver	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
49. Zinc	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
50. Iron	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	grab	200.7	0.0550 mg/l	0	0	0	0
Other (describe):	<input type="checkbox"/>	<input type="checkbox"/>								

c) For discharges where **metals** are believed present, please fill out the following:

<p><i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y <input type="checkbox"/> N <input checked="" type="checkbox"/></p>	<p>If yes, which metals?</p>
<p><i>Step 2:</i> For any metals which have reasonable potential to exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals?</p> <p>Metals: _____</p> <p>DF: 206 _____</p>	<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)?</p> <p>Y <input type="checkbox"/> N <input type="checkbox"/> If "Yes," list which metals:</p>

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:					
b) Identify each applicable treatment unit (check all that apply):	Frac. tank <input checked="" type="checkbox"/>	Air stripper	Oil/water separator <input checked="" type="checkbox"/>	Equalization tanks	Bag filter <input checked="" type="checkbox"/>
	Chlorination	Dechlorination <input checked="" type="checkbox"/>	Other (please describe):		
c) Proposed average and maximum flow rates (gallons per minute) for the discharge and the design flow rate(s) (gallons per minute) of the treatment system: Average flow rate of discharge ⁵⁰ _____ Maximum flow rate of treatment system ⁵⁰ _____ Design flow rate of treatment system ⁵⁰ _____					
d) A description of chemical additives being used or planned to be used (attach MSDS sheets): see MSDS for dechlorination chemical/tablets					

5. Receiving surface water(s). Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct _____	Within facility <input checked="" type="checkbox"/>	Storm drain <input checked="" type="checkbox"/>	River/brook <input checked="" type="checkbox"/>	Wetlands _____	Other (describe):
b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters: discharge to on-site drainage with subsequent discharge to Town of Watertown MS4 and Charles River						
c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water: 1. For multiple discharges, number the discharges sequentially. 2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.						
d) Provide the state water quality classification of the receiving water <u>Class B</u> _____,						
e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water <u>22.8</u> _____ cfs Please attach any calculation sheets used to support stream flow and dilution calculations.						
f) Is the receiving water a listed 303(d) water quality impaired or limited water? Yes <input checked="" type="checkbox"/> No _____ If yes, for which pollutant(s)? Is there a TMDL? Yes _____ No <input checked="" type="checkbox"/> If yes, for which pollutant(s)? <small>unknown toxicity; priority organics; metals; nutrients; organic enrichment/low DO; pathogens; oil and grease; taste, odor and color; noxious aquatic plants; and turbidity</small>						

6. Results of Consultation with Federal Services: Please provide the following information according to requirements of Part I.B.4 and Appendices II and VII.

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes ___ No <input checked="" type="checkbox"/>
Has any consultation with the federal services been completed? Yes ___ No <input checked="" type="checkbox"/> or is consultation underway? Yes ___ No <input checked="" type="checkbox"/>
What were the results of the consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service (check one): a "no jeopardy" opinion? ___ or written concurrence ___ on a finding that the discharges are not likely to adversely affect any endangered species or critical habitat?
b) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility or site or in proximity to the discharge? Yes <input checked="" type="checkbox"/> No ___ Have any state or tribal historic preservation officer been consulted in this determination (Massachusetts only)? Yes ___ No <input checked="" type="checkbox"/>

7. Supplemental information. :

Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility/Site Name:	Brigham House IRA
Operator signature:	<i>Andrew B. B...</i>
Title:	Managing Partner
Date:	3/10/2008

Receiving Water Information

DEPARTMENT OF PUBLIC WORKS
TOWN OF WATERTOWN, MASSACHUSETTS

APPLICATION FOR A DEWATERING DRAINAGE PERMIT

To the Town of Watertown, Massachusetts:

The undersigned, being the Owner

(Owner, Owner's Agent)

of the property located at 341 Mount Auburn Street, does
(Number) (Street)hereby request a permit to discharge dewatering drainage to the public sewer to serve the
Residence during an Immediate Response Action and NPDES RGP

(Residence, Commercial Building, etc.)

at said location.

1. The following indicated substance(s) will be discharge from the proposed construction area into the sewer:

Substance
treated water recovered from basement sump Substancewater to be treated to remove Number 6 fuel oilsee attached for additional data

Specify other substances _____

2. The maximum number of days discharge will occur: until IRA conditions are abated
3. Beginning on March 21, 2008 and ending on unknown at this time
4. The name and address of person or firm who will perform the proposed work is
Brigham House Associates, L.P. see attached for additional information
5. Plans and specifications for the method of dewatering drainage discharge are attached hereunto as Exhibit "A".

In consideration of the granting of this permit, the undersigned agrees:

1. To accept and abide by all provisions of the Rules and Regulations for discharge into and for the Use of Public Sewers of the Town of Watertown, Massachusetts, and of all other pertinent rules and regulations that may be adopted in the future.
2. To maintain the building sewer at no expense to the Town.
3. To notify the Superintendent when the building sewer is ready for inspection and connection to the public sewer, but before any portion of the work is covered.

Date 3/10/2009Signed [Signature]
(Applicant)341 Mount Auburn Street

(Address of Applicant)

(Certification by Town Treasurer)

\$ N/C inspection fee paid.

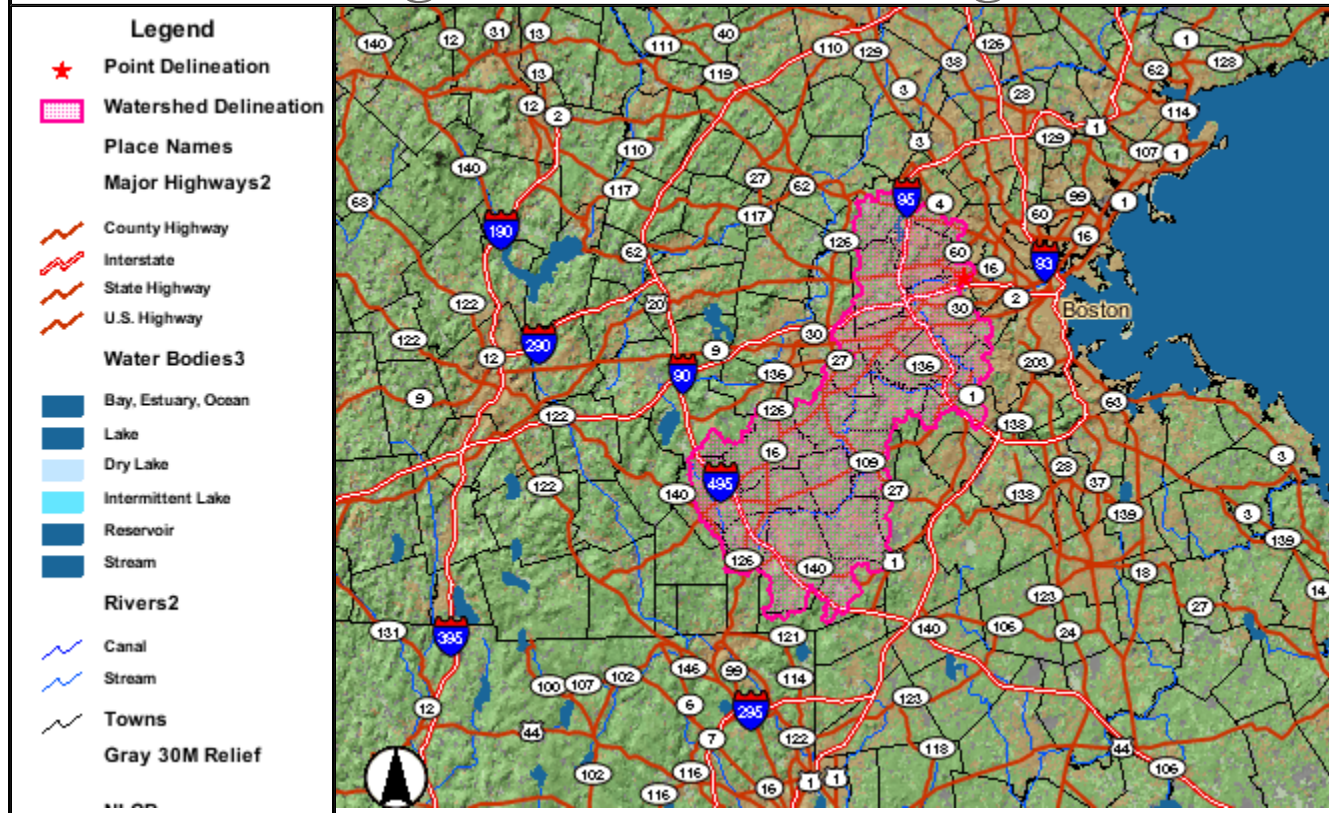
Application approved and permit issued:

Date _____

Number _____

Signed _____
Superintendent

Brigham House Discharge



Streamflow Statistics Report

Date: Wed Mar 5 2008 11:23:45
Site Location: Massachusetts
Drainage Area: 273.89 mi²
Latitude (NAD83): 42.3640 (42 21 50)
Longitude (NAD83): -71.1840 (-71 11 02)

Low Flow Basin Characteristics

100% Statewide Low Flow (274 mi²)

Parameter	Value	Min	Max
Drainage Area (square miles)	274 (above max value 149)	1.61	149
Mean Basin Slope from 250K DEM (percent)	2.33	0.32	24.6
Stratified Drift per Stream Length (square mile per mile)	0.22	0	1.29
Massachusetts Region (dimensionless)	0	0	1

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Streamflow Statistics

Statistic	Flow (ft ³ /s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D50	293				
D60	240				
D70	164				
D75	133				
D80	104				
D85	82.8				
D90	64				
D95	43.2				
D98	28.8				
D99	23.8				

Low-Flow Statistics

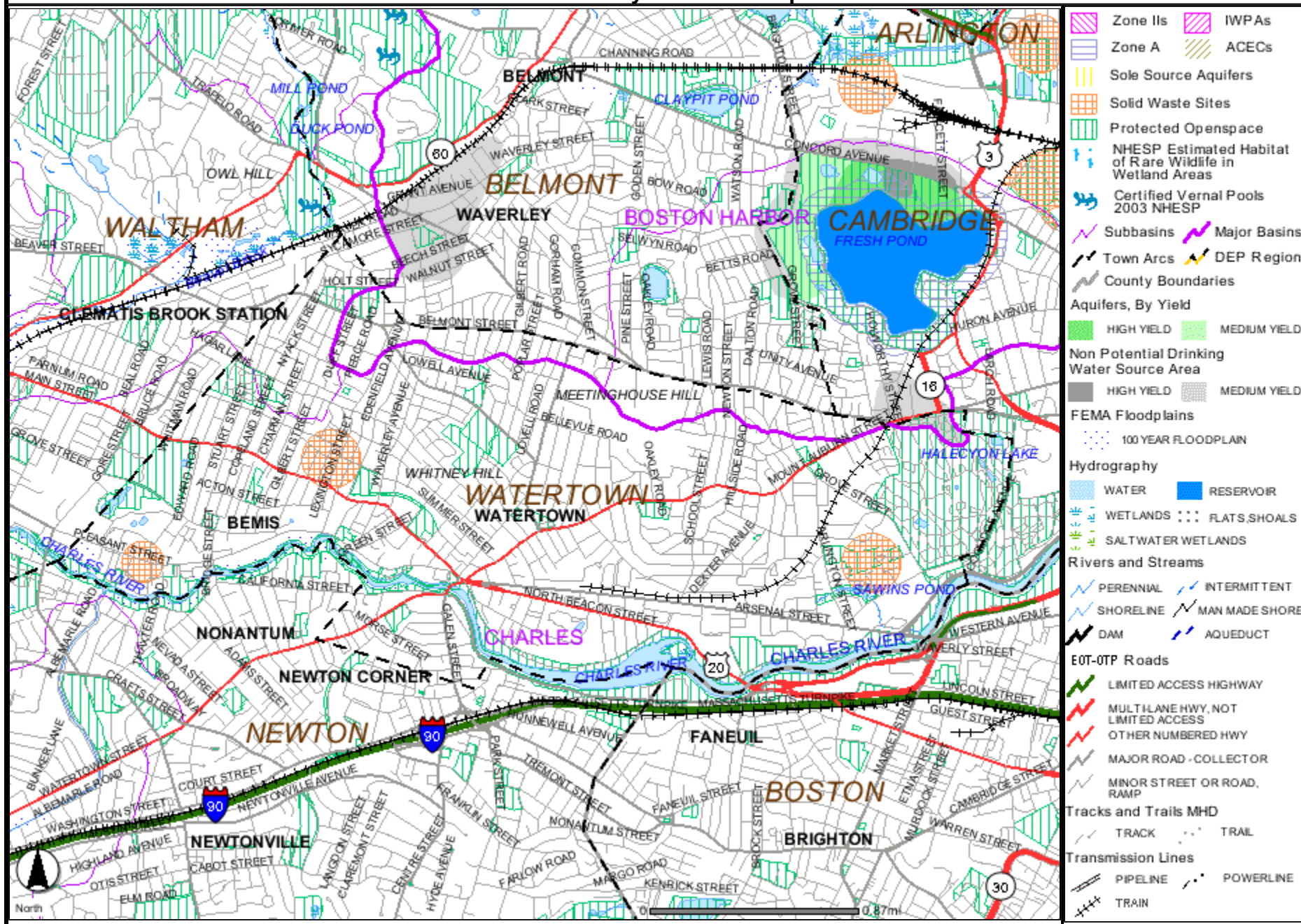
M7D2Y	46.4				
AUGD50	88.8				
M7D10Y	22.8				

Massachusetts Category 5 Waters "Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	POLLUTANT NEEDING TMDL [EPA APPROVAL DATE-DOCUMENT CONTROL NUMBER]
Charles River (7239050)	MA72-08_2006	(Charles Basin) Watertown Dam, Watertown to Science Museum, Boston.	8.5 miles	-Cause Unknown -Unknown toxicity -Priority organics -Metals -Nutrients -Organic enrichment/Low DO -Pathogens -Oil and grease -Taste, odor and color -Noxious aquatic plants -Turbidity
Cheese Cake Brook (7239100)	MA72-29_2006	Headwaters, West Newton to confluence with Charles River, Newton.	1.4 miles	-Nutrients -Siltation -Organic enrichment/Low DO -(Other habitat alterations*) -Pathogens -Oil and grease -Taste, odor and color -Noxious aquatic plants
Echo Lake (72035)	MA72035_2006	Milford/Hopkinton	72.1 acres	-Metals
Factory Pond (72037)	MA72037_2006	Holliston	9.9 acres	-Noxious aquatic plants -(Exotic species*)
Franklin Reservoir Northeast (72095)	MA72095_2006	Franklin	22.4 acres	-Noxious aquatic plants -Turbidity
Franklin Reservoir Southwest (72032)	MA72032_2006	Franklin	13.0 acres	-Noxious aquatic plants -Turbidity
Fuller Brook (7239625)	MA72-18_2006	Headwaters south of Route 135, Needham to confluence with Waban Brook, Wellesley.	4.3 miles	-Cause Unknown -Organic enrichment/Low DO -(Other habitat alterations*) -Pathogens -Noxious aquatic plants
Hardys Pond (72045)	MA72045_2006	Waltham	42.8 acres	-Nutrients -Noxious aquatic plants -Turbidity -(Exotic species*)
Houghton Pond (72050)	MA72050_2006	Holliston	17.5 acres	-Noxious aquatic plants -Turbidity -(Exotic species*)
Jamaica Pond (72052)	MA72052_2006	Boston	66.7 acres	-Nutrients -Organic enrichment/Low DO
Jennings Pond (72053)	MA72053_2006	Natick	7.4 acres	-(Flow alteration*) -Noxious aquatic plants
Kendrick Street Pond (72055)	MA72055_2006	Needham	39.3 acres	-Turbidity
Linden Pond (72063)	MA72063_2006	Holliston	1.3 acres	-Noxious aquatic plants -Turbidity

Endangered Species and Historic Properties

DEP Priority Resource Map



Include filter in navigation ☐

Row	STATE ▾	COUNTY ▾	RESOURCE NAME ▾	ADDRESS ▾	CITY ▾	LISTED ▾	MULTIPLE ▾
1	MA	Middlesex	Browne, Abraham, House	562 Main St.	Watertown	1990-03-09	First Period Buildings of Eastern Massachusetts TR
2	MA	Middlesex	Commanding Officer's Quarters, Watertown Arsenal	443 Arsenal St.	Watertown	1976-10-07	
3	MA	Middlesex	Fowle, Edmund, House	26-28 Marshall St.	Watertown	1977-11-11	
4	MA	Middlesex	Pratt, Miles, House	106 Mt. Auburn St.	Watertown	1985-05-09	
5	MA	Middlesex	Town Diner	627 Mount Auburn St.	Watertown	1999-09-22	Diners of Massachusetts MPS
6	MA	Middlesex	Watertown Arsenal Historic District	Arsenal St.	Watertown	1999-05-14	
7	MA	Middlesex	Watertown High School, Old	341 Mount Auburn St.	Watertown	2006-09-22	



Additional Information and Calculations

Table 1. Summary of Potential Compounds in Influent Water

Chemical	Effluent Limit (µg/l)	Max. Conc. (µg/l)	Max. Mass (lbs/day) ³	Max. Mass (mg/day) ⁴	Max. Mass (kg/day) ⁴
TRC	11	45	0.0270	12,257	1.23E-02
TSS	30,000	5,000	3.0024	1,361,866	1.36E+00

Notes:

1. Flow rate is 50 gpm (0.072 MGD)
2. Assume mass of water is 8.34 lbs/gal
3. Lbs/day = [(ug/l/1,000)x(flow rate)x8.34 lbs/gal]
4. Assume 1 lbs = 0.45359237 kg

Dilution Factor Calculation:

$$DF = (Q_d + Q_s) / Q_d$$

$$Q_d = \text{max flow of discharge} = 0.1114 \text{ ft}^3/\text{sec}$$

$$Q_s = 7Q_{10} \text{ (low flow) of Receiving Water from Stream Stats} = 22.8 \text{ ft}^3/\text{sec}$$

$$DF = (0.1114 + 22.8) / 0.1114$$

$$DF = 206$$

$$\text{Dilution Range} = > 100 \text{ [Ceting Value] from Appendix IV}$$



TETRA TECH RIZZO

JOB 1270103
SHEET NO. 1 OF _____
CALCULATED BY ISC DATE 3-5-08
CHECKED BY _____ DATE _____
SCALE NTS

MATERIAL SAFETY DATA SHEET

Vita-D-Chlor™



MSDS Number:
Revision date:
Revision number:

V322N
05/24/01
001
Page 1 of 2

Manufacturer:
Integra Chemical Co.
710 Thomas Ave SW
Renton WA 98055
425.277.9244

24 Hour Emergency Response Telephone: 800-451-8346

PRODUCT IDENTIFICATION

Product Name: Vita-D-Chlor
Synonyms: Dechlorinator
Chemical formula: Proprietary
Chemical family: Organic acid
Product number: V322.50

HAZARD OVERVIEW

HMIS Rating: 0-1-0-B NPFA: None established
Warning Label: Caution. Use safe chemical handling practices. Keep container closed. Use with adequate ventilation. Avoid breathing dust. Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling.

COMPOSITION/INFORMATION ON INGREDIENTS

ACGIH TLV/TWA

OSHA PEL/TWA

Organic acid

Not listed

Not listed

PHYSICAL DATA

Boiling point: NA	Vapor pressure: NA	Appearance and Odor:
Melting point: 192C	Vapor density: NA	Odorless, fine white crystals.
Specific gravity: 1.65 (Water=1)	Solubility: 33g/100mL water @25C	
Evaporation rate: NA	pH (1% solution): 2-3	

FIRE AND EXPLOSION DATA

Flash point: NA
Auto-ignition temperature: NA
Flammable limits (% by volume in air): Upper: NA, Lower: NA
Fire extinguishing media: Water spray, CO2, dry chemical, or foam
Special firefighting procedures: Use water to cool nearby containers and structures. Wear full protective equipment, including suitable respiratory protection.
Unusual fire and explosion hazards: As with most organic solids, combustion is possible at elevated temperatures.

HEALTH HAZARD INFORMATION

Effects of overexposure:

Contact: Contact may cause skin or eye irritation.
Ingestion: No harmful effects expected.
Inhalation: Inhalation may irritate the nose, throat and upper respiratory tract.

Chronic effects of overexposure: None identified
Exposure limits: None established
Toxicity data: No information available

Medical conditions aggravated by exposure: None identified
Target organs: None identified
Reproductive effects: None identified
Carcinogenicity: No listings by NTP, IARC, or OSHA

EMERGENCY FIRST AID PROCEDURES

Skin contact: Wash with soap and water. Seek medical attention if irritation develops.
Eye contact: Flush eyes with water for at least 15 minutes. If irritation persists, seek medical attention.
Inhalation: Remove to fresh air. If adverse symptoms develop, seek medical attention.
Ingestion: If adverse symptoms develop, seek medical attention.

MATERIAL SAFETY DATA SHEET

VITA-D-CHLOR™



MSDS Number:
Revision date:
Revision number:

V322N
05/24/01
001
Page 2 of 2

Manufacturer:
Integra Chemical Co.
710 Thomas Ave SW
Renton WA 98055
425.277.9244

24 Hour Emergency Response Telephone: 800-451-8346

REACTIVITY DATA

Stability: Stable
Hazardous polymerization: Will not occur
Incompatibles: Incompatible with strong acids, strong bases, strong oxidizers.
Decomposition products: Oxides of carbon (CO, CO₂)
Conditions to avoid: Exposure to light, air, moisture and high temperatures.

SPILL AND DISPOSAL PROCEDURES

Spill and leak procedures: Sweep or scoop into clean, dry disposal container. Wear protective equipment. Flush spill area with water.

Disposal procedures: Dispose in accordance with all Local, State and Federal regulations.

PROTECTIVE EQUIPMENT

Ventilation: Use adequate general or local exhaust ventilation to keep fume dust levels as low as possible.

Respiratory protection: None needed unless use generates annoying or irritating dusts. Use a dust respirator mask if necessary.

Skin and eye protective equipment: Safety glasses. Use good chemical handling practices.

STORAGE AND HANDLING PRECAUTIONS

Storage area: General.

Store in a cool, dry area. Keep away from incompatible substances. Protect from direct light and minimize contact with air. Protect containers from physical damage. Keep material dry.

TRANSPORTATION INFORMATION

Material is not regulated via either ground or air transportation.

REGULATORY INFORMATION

TSCA Inventory: Yes

CERCLA RQ:

SARA EHS TPQ:

SARA 313 Toxic Release de minimus:

SARA hazard categories: Acute: NO; Chronic: NO; Flammability: NO; Pressure: NO; Reactivity: NO

Clean air act categories: SOCM: NO; HAP: NO; Volatile HAP: NO; Organic HAP: NO; Ozone depleting: NO

FDA Recommended Dietary Allowance for ascorbic acid: 60mg/day

NSF60 Maximum Use: 12mg/L

MSDS Revision History:
Original MSDS

NE = Not established; NA = Not applicable or Not available

The information presented above is offered for informational purposes only. This MSDS, and the associated product, is intended for use only by technically qualified persons, and at their own discretion and risk. Since conditions and manner of use are outside the control of Integra Chemical Company, we make no warranties, either expressed or implied, and assume no liability in connection with any use of the information.

MATERIAL SAFETY DATA SHEET

Tramfloc, Inc.
P. O. Box 350
Tempe, AZ 85280 480-491-6895

Effective date: 10-30-02

Supersedes: 4-4-00

I. IDENTIFICATION

Product: Calcium Thiosulfate Solution
Chemical Name: Calcium Thiosulfate Solution
Formula: CaS_2O_3
Chemical Family: Inorganic Salt

II. COMPOSITION

Chemical	CAS#	Concentration	Regulation
Calcium Thiosulfate	10124-41-1	30%w/v	No

III. HAZARDOUS IDENTIFICATION

CERCLA Ratings (0-3): Health = 0 Fire = 0 Reactivity = 0 Persistence = 0

NFPA Ratings (0-4): Health = 0 Fire = 0 Reactivity = 0

NSF International Standard 60 listed for use in drinking water.

IV. EMERGENCY AND FIRST AID PROCEDURES

POTENTIAL SHORT-TERM HEALTH EFFECTS:

SKIN CONTACT: Immediately flush with large quantities of water, remove contaminated clothing and shoes and wash product from skin.

EYE CONTACT: Immediately flush eyes with clean water, lifting upper and lower lids, for at least 15-20 minutes. Obtain medical attention if irritation occurs or persist.

INGESTION: If vomiting occurs, keep head lower than hips to help prevent aspiration. Treat symptomatically and supportively. Get medical attention if needed.

INHALATION: Remove victim from contaminated area. If breathing is labored, administer oxygen. If breathing has ceased, clear the airway and begin mouth to mouth.

LONG-TERM HEALTH EFFECTS: No information on long-term effects is available.

V. FIRE AND EXPLOSION HAZARD

Negligible hazard when exposed to heat or flame

EXTINGUISHING MEDIA: Extinguish using agent suitable for type of surrounding fire.

FIRE FIGHTING: Move container from fire area if possible. Avoid breathing vapors. Keep upwind. Use agents suitable for type of surrounding fire. Avoid breathing hazardous vapors. Keep upwind.

HAZARDOUS COMBUSTION PRODUCTS: Thermal decomposition products may include toxic oxides of sulfur.

FLASH POINT: n/d

FLAMMABLE LIMITS IN AIR: n/d

AUTO IGNITION TEMPERATURE (degrees C (F)): n/d

EXTINGUISHING MEDIA: CO₂, dry chemical foam, water spray

VI. ACCIDENTAL RELEASE MEASURES

Absorb small spills with sand, earth, sweeping compound or other inert absorbent. Dispose of in accordance with all government regulations. Large spills should be diked to prevent entry of large quantities of product into sewers or drains. Recover as much of solution as possible. On large spills, land application could be possible as long as application rates are not exceeded, please check with the local Ag Commissioner for permission. Dispose of in accordance with applicable local, county, state, and federal regulations.

VII. HANDLING AND STORAGE

Do not heat drums with any welding equipment as explosion may occur. Avoid breathing gas. Do not get in eyes, on skin, or on clothing. Store in a cool, dry place in properly designed vessels.

VIII. EXPOURE CONTROLS / PERSONAL PROTECTIONS

No occupational exposure limits have been established by OSHA, ACGIH, or NIOSH.

PROTECTIVE EQUIPMENT SHOULD BE USED DURING THE FOLLOWING PROCEDURES:

- Manufacture or formulation of this product
- Repair and maintenance of contaminated equipment.
- Clean up of leaks and spills
- Any other activity that may result in hazardous exposures.

RESPIRATORY PROTECTION:

None generally required. If conditions exist where excessive mist might be generated, a mist respirator is recommended.

In case of emergency conditions such as fire, high heat, and/or contact with acids, use a NIOSH / MSHA approved full-face respirator with SO₂ gas cartridge. Use positive

pressure self-contained breathing apparatus for emergency or other conditions requiring a higher level of protection.

CLOTHING: Rubber gloves and apron should be used for prolonged or repeated contact. Safety glasses or chemical goggles are recommended to avoid eye contact. Do not wear contact lenses.

IX. PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION: Clear colorless solution

Molecular Weight: 152.20

Water Solubility: Completely soluble in water

Molecular formula for active ingredient: CaS_2O_3

Solvent Solubility: Nearly insoluble in alcohol

Specific Gravity: 1.245

pH: 6.5 – 7.5

Vapor pressure: (mm Hg) N/D

X. STABILITY AND REACTIVITY

Stable under normal conditions and pressures.

CONDITIONS TO AVOID: Avoid contact with acids. Sulfur dioxide could be released if mixed with acids.

INCOMPATIBILITIES: Reacts with acid to form sulfur dioxide. Corrosive to brass and copper.

XI. TOXICOLOGICAL INFORMATION:

LD 50 (rat): Anhydrous CaS_2O_3 : 374 mg/kg intravenous

LD 50 (rat): 573 mg/kg intraperitoneal

LD 50 (mouse): rat LD 50; 115 mg/kg intraperitoneal

CARCINOGEN STATUS: None

ACUTE TOXICITY LEVEL: Insufficient data.

TARGET EFFECTS: No data available.

SKIN CONTACT: May be irritating

EYE CONTACT: May be irritating.

INGESTION: Thiosulfate salts are poorly absorbed from the alimentary tract. Ingestion may result in a cathartic effect.

CHRONIC EXPOSURE: No data available for any type of exposure.

XII. DISPOSAL CONSIDERATIONS

Contaminated cleanup materials may be hazardous. Refer to Sections IV and VIII of this MSDS sheet before handling. All contaminated materials should be placed in disposable containers and buried in an approved dumping area. Follow all local rules governing waste disposal in your area.

XIII. TRANSPORTATION INFORMATION

Classification: Not hazardous by D.O.T. Regulations

D.O.T. Proper Shipping Name: Calcium Thiosulfate

Other Requirements: N/A

XIV. REGULATORY INFORMATION

REGULATORY INFORMATION

SARA TITLE III SECTION 313: NOT LISTED

RCRA HAZARDOUS WASTE: NOT LISTED

CA Prop. 65: NOT LISTED

XV. OTHER INFORMATION

The information contained herein is to the best of our knowledge and belief accurate. However, since the conditions of handling and use are beyond our control, Tramfloc, Inc. makes no guarantee for results obtained, and assumes no responsibility for damages incurred by use of this product. It is the responsibility of the user to comply with all federal, state and local laws and regulations.

Report Date:
29-Feb-08 09:59



- ☒ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.

Featuring

HANIBAL TECHNOLOGY

Laboratory Report

Tetra Tech Rizzo
One Grant Street - P.O. Box 9005
Framingham, MA 01701
Attn: Dimitri Gounis

Project: 341 Mount Auburn St - Watertown, MA
Project 12701003-003

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SA74755-01	Crawl Space	Ground Water	20-Feb-08 11:00	20-Feb-08 17:42

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.

All applicable NELAC requirements have been met.

Please note that this report contains 18 pages of analytical data plus Chain of Custody document(s).

This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Massachusetts Certification # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Sample Identification**Crawl Space**

SA74755-01

Client Project #

12701003-003

Matrix

Ground Water

Collection Date/Time

20-Feb-08 11:00

Received

20-Feb-08

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Batch</i>	<i>Analyst</i>
Volatile Organic Compounds											
<u>Volatile Organic Compounds by GCMS</u>											
Prepared by method SW846 5030 Water MS											
67-64-1	Acetone	BRL		µg/l	20.0	1	EPA 624	26-Feb-08	26-Feb-08	8021672	EQ
71-43-2	Benzene	BRL		µg/l	1.0	1	"	"	"	"	"
75-27-4	Bromodichloromethane	BRL		µg/l	1.0	1	"	"	"	"	"
75-25-2	Bromoform	BRL		µg/l	1.0	1	"	"	"	"	"
74-83-9	Bromomethane	BRL		µg/l	2.0	1	"	"	"	"	"
78-93-3	2-Butanone (MEK)	BRL		µg/l	10.0	1	"	"	"	"	"
56-23-5	Carbon tetrachloride	BRL		µg/l	1.0	1	"	"	"	"	"
108-90-7	Chlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"
75-00-3	Chloroethane	BRL		µg/l	2.0	1	"	"	"	"	"
67-66-3	Chloroform	BRL		µg/l	1.0	1	"	"	"	"	"
74-87-3	Chloromethane	BRL		µg/l	2.0	1	"	"	"	"	"
124-48-1	Dibromochloromethane	BRL		µg/l	1.0	1	"	"	"	"	"
95-50-1	1,2-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"
106-46-7	1,4-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"
75-34-3	1,1-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"
107-06-2	1,2-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"
75-35-4	1,1-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"
156-59-2	cis-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"
156-60-5	trans-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"
78-87-5	1,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"
10061-01-5	cis-1,3-Dichloropropene	BRL		µg/l	1.0	1	"	"	"	"	"
10061-02-6	trans-1,3-Dichloropropene	BRL		µg/l	1.0	1	"	"	"	"	"
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"
591-78-6	2-Hexanone (MBK)	BRL		µg/l	10.0	1	"	"	"	"	"
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0	1	"	"	"	"	"
75-09-2	Methylene chloride	BRL		µg/l	10.0	1	"	"	"	"	"
100-42-5	Styrene	BRL		µg/l	1.0	1	"	"	"	"	"
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/l	1.0	1	"	"	"	"	"
127-18-4	Tetrachloroethene	BRL		µg/l	1.0	1	"	"	"	"	"
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	"
71-55-6	1,1,1-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"
79-00-5	1,1,2-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"
79-01-6	Trichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"
75-69-4	Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0	1	"	"	"	"	"
75-01-4	Vinyl chloride	BRL		µg/l	1.0	1	"	"	"	"	"
1330-20-7	m,p-Xylene	BRL		µg/l	2.0	1	"	"	"	"	"
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"	"	"	"
<i>Surrogate recoveries:</i>											
460-00-4	4-Bromofluorobenzene	105			70-130 %		"	"	"	"	"
2037-26-5	Toluene-d8	99			70-130 %		"	"	"	"	"
17060-07-0	1,2-Dichloroethane-d4	97			70-130 %		"	"	"	"	"
1868-53-7	Dibromofluoromethane	97			70-130 %		"	"	"	"	"
Microextractable Organic Compounds											
<u>Microextractables by EPA 504.1</u>											
Prepared by method SW846 3510C											
96-12-8	1,2-Dibromo-3-chloropropane	BRL		µg/l	0.0100	1	EPA 504.1	27-Feb-08	28-Feb-08	8021727	SM
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	0.0100	1	"	"	"	"	"
Semivolatle Organic Compounds by GCMS											

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* Reportable Detection Limit

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Sample Identification**Crawl Space**

SA74755-01

Client Project #

12701003-003

Matrix

Ground Water

Collection Date/Time

20-Feb-08 11:00

Received

20-Feb-08

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Batch</i>	<i>Analyst</i>
Semivolatile Organic Compounds by GCMS											
<u>PAHs by SW846 8270C</u>											
Prepared by method SW846 3510C											
83-32-9	Acenaphthene	BRL		µg/l	2.78	1	SW846 8270C	25-Feb-08	27-Feb-08	8021521	M.B
208-96-8	Acenaphthylene	BRL		µg/l	2.78	1	"	"	"	"	"
120-12-7	Anthracene	BRL		µg/l	2.78	1	"	"	"	"	"
56-55-3	Benzo (a) anthracene	BRL		µg/l	2.78	1	"	"	"	"	"
50-32-8	Benzo (a) pyrene	BRL		µg/l	2.78	1	"	"	"	"	"
205-99-2	Benzo (b) fluoranthene	BRL		µg/l	2.78	1	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	BRL		µg/l	2.78	1	"	"	"	"	"
207-08-9	Benzo (k) fluoranthene	BRL		µg/l	2.78	1	"	"	"	"	"
218-01-9	Chrysene	BRL		µg/l	2.78	1	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	BRL		µg/l	2.78	1	"	"	"	"	"
206-44-0	Fluoranthene	BRL		µg/l	2.78	1	"	"	"	"	"
86-73-7	Fluorene	BRL		µg/l	2.78	1	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	BRL		µg/l	2.78	1	"	"	"	"	"
90-12-0	1-Methylnaphthalene	BRL		µg/l	2.78	1	"	"	"	"	"
91-57-6	2-Methylnaphthalene	BRL		µg/l	2.78	1	"	"	"	"	"
91-20-3	Naphthalene	BRL		µg/l	2.78	1	"	"	"	"	"
85-01-8	Phenanthrene	BRL		µg/l	2.78	1	"	"	"	"	"
129-00-0	Pyrene	BRL		µg/l	2.78	1	"	"	"	"	"
<i>Surrogate recoveries:</i>											
321-60-8	2-Fluorobiphenyl	55			30-130 %		"	"	"	"	"
1718-51-0	Terphenyl-dl4	56			30-130 %		"	"	"	"	"
<u>Acid Extractables/Phenols by SW846 8270C</u>											
Prepared by method SW846 3510C											
59-50-7	4-Chloro-3-methylphenol	BRL		µg/l	2.78	1	"	"	"	"	"
95-57-8	2-Chlorophenol	BRL		µg/l	2.78	1	"	"	"	"	"
120-83-2	2,4-Dichlorophenol	BRL		µg/l	2.78	1	"	"	"	"	"
105-67-9	2,4-Dimethylphenol	BRL		µg/l	2.78	1	"	"	"	"	"
534-52-1	4,6-Dinitro-2-methylphenol	BRL		µg/l	2.78	1	"	"	"	"	"
51-28-5	2,4-Dinitrophenol	BRL		µg/l	2.78	1	"	"	"	"	"
95-48-7	2-Methylphenol	BRL		µg/l	2.78	1	"	"	"	"	"
108-39-4, 106-44-5	3,4-Methylphenol	BRL		µg/l	5.56	1	"	"	"	"	"
88-75-5	2-Nitrophenol	BRL		µg/l	2.78	1	"	"	"	"	"
100-02-7	4-Nitrophenol	BRL		µg/l	2.78	1	"	"	"	"	"
87-86-5	Pentachlorophenol	BRL		µg/l	2.78	1	"	"	"	"	"
108-95-2	Phenol	BRL		µg/l	2.78	1	"	"	"	"	"
95-95-4	2,4,5-Trichlorophenol	BRL		µg/l	2.78	1	"	"	"	"	"
88-06-2	2,4,6-Trichlorophenol	BRL		µg/l	2.78	1	"	"	"	"	"
<i>Surrogate recoveries:</i>											
367-12-4	2-Fluorophenol	51			15-110 %		"	"	"	"	"
4165-62-2	Phenol-d5	40			15-110 %		"	"	"	"	"
Semivolatile Organic Compounds by GC											
<u>Polychlorinated Biphenyls by EPA 608</u>											
Prepared by method SW846 3510C											
12674-11-2	Aroclor-1016	BRL		µg/l	0.211	1	EPA 608	25-Feb-08	26-Feb-08	8021525	IMR
11104-28-2	Aroclor-1221	BRL		µg/l	0.211	1	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/l	0.211	1	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/l	0.211	1	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/l	0.211	1	"	"	"	"	"
11097-69-1	Aroclor-1254	BRL		µg/l	0.211	1	"	"	"	"	"

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* Reportable Detection Limit

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Sample Identification**Crawl Space**

SA74755-01

Client Project #

12701003-003

Matrix

Ground Water

Collection Date/Time

20-Feb-08 11:00

Received

20-Feb-08

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Batch</i>	<i>Analyst</i>
Semivolatile Organic Compounds by GC											
<u>Polychlorinated Biphenyls by EPA 608</u>											
Prepared by method SW846 3510C											
11096-82-5	Aroclor-1260	BRL		µg/l	0.211	1	EPA 608	25-Feb-08	26-Feb-08	8021525	IMR
37324-23-5	Aroclor-1262	BRL		µg/l	0.211	1	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/l	0.211	1	"	"	"	"	"
<i>Surrogate recoveries:</i>											
2051-24-3	Decachlorobiphenyl (Sr)	66		30-150 %			"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	64		30-150 %			"	"	"	"	"
Extractable Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	22-Feb-08	24-Feb-08	8021419	JK
Total Metals by EPA 200 Series Methods											
7440-22-4	Silver	BRL		mg/l	0.0050	1	EPA 200.7	22-Feb-08	25-Feb-08	8021350	SA/
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	"	"	"	"	"
7440-43-9	Cadmium	BRL		mg/l	0.0025	1	"	"	"	"	"
7440-47-3	Chromium	BRL		mg/l	0.0080	1	"	"	"	"	"
7439-89-6	Iron	BRL		mg/l	0.0550	1	"	"	"	"	"
General Chemistry Parameters											
1854-029-9	Hexavalent Chromium	BRL		mg/l	0.008	1	SW846 7196A/SM3500CrD	20-Feb-08 19:18	20-Feb-08	8021303	CKA
57-12-5	Cyanide (total)	BRL		mg/l	0.0100	1	10-204-00-1-A / SW846 9012A / EPA 335.4	21-Feb-08	22-Feb-08	8021402	eem
7782-50-5	Total Residual Chlorine	0.045		mg/l	0.020	1	Hach 8167	20-Feb-08 19:35	20-Feb-08	8021304	CKA
	Total Suspended Solids	5.00		mg/l	5.00	1	SM2540D	21-Feb-08	21-Feb-08	8021348	DN

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Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021672 - SW846 5030 Water MS										
<u>Blank (8021672-BLK1)</u>										
Prepared & Analyzed: 26-Feb-08										
Acetone	BRL		µg/l	20.0						
Benzene	BRL		µg/l	1.0						
Bromodichloromethane	BRL		µg/l	1.0						
Bromoform	BRL		µg/l	1.0						
Bromomethane	BRL		µg/l	2.0						
2-Butanone (MEK)	BRL		µg/l	10.0						
Carbon tetrachloride	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
Chloroethane	BRL		µg/l	2.0						
Chloroform	BRL		µg/l	1.0						
Chloromethane	BRL		µg/l	2.0						
Dibromochloromethane	BRL		µg/l	1.0						
1,2-Dichlorobenzene	BRL		µg/l	1.0						
1,3-Dichlorobenzene	BRL		µg/l	1.0						
1,4-Dichlorobenzene	BRL		µg/l	1.0						
1,1-Dichloroethane	BRL		µg/l	1.0						
1,2-Dichloroethane	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
cis-1,2-Dichloroethene	BRL		µg/l	1.0						
trans-1,2-Dichloroethene	BRL		µg/l	1.0						
1,2-Dichloropropane	BRL		µg/l	1.0						
cis-1,3-Dichloropropene	BRL		µg/l	1.0						
trans-1,3-Dichloropropene	BRL		µg/l	1.0						
Ethylbenzene	BRL		µg/l	1.0						
2-Hexanone (MBK)	BRL		µg/l	10.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0						
Methylene chloride	BRL		µg/l	10.0						
Styrene	BRL		µg/l	1.0						
1,1,2,2-Tetrachloroethane	BRL		µg/l	1.0						
Tetrachloroethene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
1,1,1-Trichloroethane	BRL		µg/l	1.0						
1,1,2-Trichloroethane	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0						
Vinyl chloride	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	31.8		µg/l		30.0		106	70-130		
Surrogate: Toluene-d8	28.9		µg/l		30.0		96	70-130		
Surrogate: 1,2-Dichloroethane-d4	28.2		µg/l		30.0		94	70-130		
Surrogate: Dibromofluoromethane	29.0		µg/l		30.0		97	70-130		
<u>LCS (8021672-BS1)</u>										
Prepared & Analyzed: 26-Feb-08										
Acetone	13.9		µg/l		20.0		70	70-130		
Benzene	20.1		µg/l		20.0		101	70-130		
Bromodichloromethane	19.3		µg/l		20.0		96	35-155		
Bromoform	18.8		µg/l		20.0		94	45-169		
Bromomethane	20.1		µg/l		20.0		101	1-242		

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BRL = Below Reporting Limit

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021672 - SW846 5030 Water MS										
<u>LCS (8021672-BS1)</u>										
Prepared & Analyzed: 26-Feb-08										
2-Butanone (MEK)	15.5		µg/l		20.0		78	70-130		
Carbon tetrachloride	17.7		µg/l		20.0		88	70-140		
Chlorobenzene	21.9		µg/l		20.0		109	70-130		
Chloroethane	20.0		µg/l		20.0		100	14-230		
Chloroform	18.2		µg/l		20.0		91	51-138		
Chloromethane	22.9		µg/l		20.0		114	1-273		
Dibromochloromethane	19.0		µg/l		20.0		95	53-149		
1,2-Dichlorobenzene	20.2		µg/l		20.0		101	18-190		
1,3-Dichlorobenzene	22.8		µg/l		20.0		114	59-156		
1,4-Dichlorobenzene	19.7		µg/l		20.0		99	18-190		
1,1-Dichloroethane	19.2		µg/l		20.0		96	59-155		
1,2-Dichloroethane	16.4		µg/l		20.0		82	49-155		
1,1-Dichloroethene	18.0		µg/l		20.0		90	70-130		
cis-1,2-Dichloroethene	19.4		µg/l		20.0		97	70-130		
trans-1,2-Dichloroethene	18.3		µg/l		20.0		92	54-156		
1,2-Dichloropropane	18.6		µg/l		20.0		93	1-210		
cis-1,3-Dichloropropene	18.6		µg/l		20.0		93	1-227		
trans-1,3-Dichloropropene	18.8		µg/l		20.0		94	17-183		
Ethylbenzene	23.3		µg/l		20.0		116	37-162		
2-Hexanone (MBK)	16.1		µg/l		20.0		81	70-130		
Methyl tert-butyl ether	16.1		µg/l		20.0		80	70-130		
4-Methyl-2-pentanone (MIBK)	15.4		µg/l		20.0		77	70-130		
Methylene chloride	18.8		µg/l		20.0		94	1-221		
Styrene	22.9		µg/l		20.0		114	70-130		
1,1,2,2-Tetrachloroethane	16.4		µg/l		20.0		82	46-157		
Tetrachloroethene	21.9		µg/l		20.0		109	64-148		
Toluene	20.6		µg/l		20.0		103	70-130		
1,1,1-Trichloroethane	18.7		µg/l		20.0		94	52-162		
1,1,2-Trichloroethane	18.4		µg/l		20.0		92	52-150		
Trichloroethene	20.3		µg/l		20.0		102	71-157		
Trichlorofluoromethane (Freon 11)	17.7		µg/l		20.0		88	17-181		
Vinyl chloride	23.4		µg/l		20.0		117	1-251		
m,p-Xylene	46.6		µg/l		40.0		116	70-130		
o-Xylene	23.0		µg/l		20.0		115	70-130		
Surrogate: 4-Bromofluorobenzene	31.0		µg/l		30.0		103	70-130		
Surrogate: Toluene-d8	30.4		µg/l		30.0		101	70-130		
Surrogate: 1,2-Dichloroethane-d4	25.7		µg/l		30.0		86	70-130		
Surrogate: Dibromofluoromethane	27.8		µg/l		30.0		93	70-130		
<u>LCS Dup (8021672-BSD1)</u>										
Prepared & Analyzed: 26-Feb-08										
Acetone	13.6	QC1	µg/l		20.0		68	70-130	2	30
Benzene	19.2		µg/l		20.0		96	70-130	5	30
Bromodichloromethane	18.9		µg/l		20.0		95	35-155	2	30
Bromoform	20.8		µg/l		20.0		104	45-169	10	30
Bromomethane	17.7		µg/l		20.0		88	1-242	13	30
2-Butanone (MEK)	14.6		µg/l		20.0		73	70-130	6	30
Carbon tetrachloride	18.5		µg/l		20.0		93	70-140	5	30
Chlorobenzene	21.0		µg/l		20.0		105	70-130	4	30
Chloroethane	16.5		µg/l		20.0		83	14-230	19	30
Chloroform	18.9		µg/l		20.0		95	51-138	4	30

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Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021672 - SW846 5030 Water MS										
<u>LCS Dup (8021672-BSD1)</u>										
Prepared & Analyzed: 26-Feb-08										
Chloromethane	16.1	QR2	µg/l		20.0		80	1-273	35	30
Dibromochloromethane	16.8		µg/l		20.0		84	53-149	12	30
1,2-Dichlorobenzene	19.2		µg/l		20.0		96	18-190	5	30
1,3-Dichlorobenzene	21.0		µg/l		20.0		105	59-156	8	30
1,4-Dichlorobenzene	19.0		µg/l		20.0		95	18-190	4	30
1,1-Dichloroethane	19.4		µg/l		20.0		97	59-155	1	30
1,2-Dichloroethane	16.9		µg/l		20.0		84	49-155	3	30
1,1-Dichloroethene	19.0		µg/l		20.0		95	70-130	5	30
cis-1,2-Dichloroethene	20.1		µg/l		20.0		100	70-130	4	30
trans-1,2-Dichloroethene	19.0		µg/l		20.0		95	54-156	4	30
1,2-Dichloropropane	18.2		µg/l		20.0		91	1-210	2	30
cis-1,3-Dichloropropene	17.7		µg/l		20.0		89	1-227	5	30
trans-1,3-Dichloropropene	17.4		µg/l		20.0		87	17-183	8	30
Ethylbenzene	22.0		µg/l		20.0		110	37-162	6	30
2-Hexanone (MBK)	15.3		µg/l		20.0		76	70-130	5	30
Methyl tert-butyl ether	17.6		µg/l		20.0		88	70-130	9	30
4-Methyl-2-pentanone (MIBK)	15.4		µg/l		20.0		77	70-130	0.1	30
Methylene chloride	18.2		µg/l		20.0		91	1-221	3	30
Styrene	22.0		µg/l		20.0		110	70-130	4	30
1,1,2,2-Tetrachloroethane	17.1		µg/l		20.0		85	46-157	4	30
Tetrachloroethene	19.4		µg/l		20.0		97	64-148	12	30
Toluene	19.1		µg/l		20.0		95	70-130	8	30
1,1,1-Trichloroethane	19.8		µg/l		20.0		99	52-162	6	30
1,1,2-Trichloroethane	17.6		µg/l		20.0		88	52-150	5	30
Trichloroethene	19.4		µg/l		20.0		97	71-157	5	30
Trichlorofluoromethane (Freon 11)	19.7		µg/l		20.0		99	17-181	11	30
Vinyl chloride	19.6		µg/l		20.0		98	1-251	18	30
m,p-Xylene	44.6		µg/l		40.0		111	70-130	4	30
o-Xylene	22.2		µg/l		20.0		111	70-130	4	30
Surrogate: 4-Bromofluorobenzene	32.8		µg/l		30.0		109	70-130		
Surrogate: Toluene-d8	29.0		µg/l		30.0		97	70-130		
Surrogate: 1,2-Dichloroethane-d4	27.4		µg/l		30.0		91	70-130		
Surrogate: Dibromofluoromethane	28.4		µg/l		30.0		95	70-130		
<u>Matrix Spike (8021672-MS1)</u> Source: SA74755-01										
Prepared & Analyzed: 26-Feb-08										
Benzene	22.8		µg/l		20.0	BRL	114	70-130		
Bromodichloromethane	21.6		µg/l		20.0	BRL	108	35-155		
Bromoform	21.4		µg/l		20.0	BRL	107	45-169		
Bromomethane	22.4		µg/l		20.0	BRL	112	1-242		
Carbon tetrachloride	24.0		µg/l		20.0	BRL	120	70-140		
Chlorobenzene	24.1		µg/l		20.0	BRL	120	70-130		
Chloroethane	21.0		µg/l		20.0	BRL	105	14-230		
Chloroform	22.6		µg/l		20.0	BRL	113	51-138		
Chloromethane	21.4		µg/l		20.0	BRL	107	1-273		
Dibromochloromethane	20.3		µg/l		20.0	BRL	102	53-149		
1,2-Dichlorobenzene	22.6		µg/l		20.0	BRL	113	18-190		
1,3-Dichlorobenzene	24.2		µg/l		20.0	BRL	121	59-156		
1,4-Dichlorobenzene	22.5		µg/l		20.0	BRL	112	18-190		
1,1-Dichloroethane	22.7		µg/l		20.0	BRL	113	59-155		
1,2-Dichloroethane	20.1		µg/l		20.0	BRL	100	49-155		

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* Reportable Detection Limit

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Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021672 - SW846 5030 Water MS										
<u>Matrix Spike (8021672-MS1)</u> Source: SA74755-01										
Prepared & Analyzed: 26-Feb-08										
1,1-Dichloroethene	23.2		µg/l		20.0	BRL	116	70-130		
trans-1,2-Dichloroethene	23.0		µg/l		20.0	BRL	115	54-156		
1,2-Dichloropropane	20.9		µg/l		20.0	BRL	104	1-210		
cis-1,3-Dichloropropene	20.5		µg/l		20.0	BRL	103	1-227		
trans-1,3-Dichloropropene	19.8		µg/l		20.0	BRL	99	17-183		
Ethylbenzene	25.6		µg/l		20.0	BRL	128	37-162		
Methylene chloride	20.5		µg/l		20.0	BRL	103	1-221		
1,1,2,2-Tetrachloroethane	18.2		µg/l		20.0	BRL	91	46-157		
Tetrachloroethene	24.5		µg/l		20.0	BRL	122	64-148		
Toluene	22.3		µg/l		20.0	BRL	112	70-130		
1,1,1-Trichloroethane	23.9		µg/l		20.0	BRL	120	52-162		
1,1,2-Trichloroethane	19.8		µg/l		20.0	BRL	99	52-150		
Trichloroethene	23.3		µg/l		20.0	BRL	116	71-157		
Trichlorofluoromethane (Freon 11)	25.1		µg/l		20.0	BRL	125	17-181		
Vinyl chloride	26.0		µg/l		20.0	BRL	130	1-251		
Surrogate: 4-Bromofluorobenzene	32.4		µg/l		30.0		108	70-130		
Surrogate: Toluene-d8	30.0		µg/l		30.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	28.9		µg/l		30.0		96	70-130		
Surrogate: Dibromofluoromethane	29.1		µg/l		30.0		97	70-130		
<u>Matrix Spike Dup (8021672-MSD1)</u> Source: SA74755-01										
Prepared & Analyzed: 26-Feb-08										
Benzene	23.8		µg/l		20.0	BRL	119	70-130	4	30
Bromodichloromethane	22.6		µg/l		20.0	BRL	113	35-155	4	30
Bromoform	21.7		µg/l		20.0	BRL	108	45-169	1	30
Bromomethane	24.0		µg/l		20.0	BRL	120	1-242	7	30
Carbon tetrachloride	25.3		µg/l		20.0	BRL	126	70-140	5	30
Chlorobenzene	23.5		µg/l		20.0	BRL	117	70-130	3	30
Chloroethane	23.2		µg/l		20.0	BRL	116	14-230	10	30
Chloroform	23.3		µg/l		20.0	BRL	117	51-138	3	30
Chloromethane	24.8		µg/l		20.0	BRL	124	1-273	15	30
Dibromochloromethane	21.6		µg/l		20.0	BRL	108	53-149	6	30
1,2-Dichlorobenzene	21.9		µg/l		20.0	BRL	109	18-190	3	30
1,3-Dichlorobenzene	24.3		µg/l		20.0	BRL	122	59-156	0.7	30
1,4-Dichlorobenzene	21.3		µg/l		20.0	BRL	106	18-190	6	30
1,1-Dichloroethane	23.5		µg/l		20.0	BRL	117	59-155	3	30
1,2-Dichloroethane	20.8		µg/l		20.0	BRL	104	49-155	4	30
1,1-Dichloroethene	24.9		µg/l		20.0	BRL	124	70-130	7	30
trans-1,2-Dichloroethene	23.4		µg/l		20.0	BRL	117	54-156	2	30
1,2-Dichloropropane	21.4		µg/l		20.0	BRL	107	1-210	3	30
cis-1,3-Dichloropropene	21.2		µg/l		20.0	BRL	106	1-227	3	30
trans-1,3-Dichloropropene	21.2		µg/l		20.0	BRL	106	17-183	7	30
Ethylbenzene	24.5		µg/l		20.0	BRL	123	37-162	4	30
Methylene chloride	22.2		µg/l		20.0	BRL	111	1-221	8	30
1,1,2,2-Tetrachloroethane	19.0		µg/l		20.0	BRL	95	46-157	4	30
Tetrachloroethene	25.5		µg/l		20.0	BRL	127	64-148	4	30
Toluene	23.3		µg/l		20.0	BRL	116	70-130	4	30
1,1,1-Trichloroethane	24.8		µg/l		20.0	BRL	124	52-162	4	30
1,1,2-Trichloroethane	21.0		µg/l		20.0	BRL	105	52-150	6	30
Trichloroethene	24.1		µg/l		20.0	BRL	120	71-157	3	30
Trichlorofluoromethane (Freon 11)	26.5		µg/l		20.0	BRL	133	17-181	6	30

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Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021672 - SW846 5030 Water MS										
<u>Matrix Spike Dup (8021672-MSD1)</u> Source: SA74755-01										
Prepared & Analyzed: 26-Feb-08										
Vinyl chloride	27.9		µg/l		20.0	BRL	140	1-251	7	30
Surrogate: 4-Bromofluorobenzene	32.6		µg/l		30.0		109	70-130		
Surrogate: Toluene-d8	30.8		µg/l		30.0		103	70-130		
Surrogate: 1,2-Dichloroethane-d4	31.5		µg/l		30.0		105	70-130		
Surrogate: Dibromofluoromethane	30.9		µg/l		30.0		103	70-130		

Microextractable Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021727 - SW846 3510C										
<u>Blank (8021727-BLK1)</u>										
Prepared: 27-Feb-08 Analyzed: 28-Feb-08										
1,2-Dibromo-3-chloropropane	BRL		µg/l	0.0100						
1,2-Dibromoethane (EDB)	BRL		µg/l	0.0100						
<u>LCS (8021727-BS1)</u>										
Prepared: 27-Feb-08 Analyzed: 28-Feb-08										
1,2-Dibromoethane (EDB)	0.250		µg/l	0.0100	0.200		125	50-150		
1,2-Dibromo-3-chloropropane	0.240		µg/l	0.0100	0.200		120	50-150		
<u>Duplicate (8021727-DUP1)</u> Source: SA74725-01										
Prepared: 27-Feb-08 Analyzed: 28-Feb-08										
1,2-Dibromoethane (EDB)	BRL		µg/l	0.0100		BRL				30
1,2-Dibromo-3-chloropropane	BRL		µg/l	0.0100		BRL				30

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021521 - SW846 3510C										
<u>Blank (8021521-BLK1)</u>										
Prepared: 25-Feb-08 Analyzed: 27-Feb-08										
Acenaphthene	BRL		µg/l	2.50						
Acenaphthylene	BRL		µg/l	2.50						
Anthracene	BRL		µg/l	2.50						
Benzo (a) anthracene	BRL		µg/l	2.50						
Benzo (a) pyrene	BRL		µg/l	2.50						
Benzo (b) fluoranthene	BRL		µg/l	2.50						
Benzo (g,h,i) perylene	BRL		µg/l	2.50						
Benzo (k) fluoranthene	BRL		µg/l	2.50						
4-Chloro-3-methylphenol	BRL		µg/l	2.50						
2-Chlorophenol	BRL		µg/l	2.50						
Chrysene	BRL		µg/l	2.50						
Dibenzo (a,h) anthracene	BRL		µg/l	2.50						
2,4-Dichlorophenol	BRL		µg/l	2.50						
2,4-Dimethylphenol	BRL		µg/l	2.50						
4,6-Dinitro-2-methylphenol	BRL		µg/l	2.50						
2,4-Dinitrophenol	BRL		µg/l	2.50						
Fluoranthene	BRL		µg/l	2.50						
Fluorene	BRL		µg/l	2.50						
Indeno (1,2,3-cd) pyrene	BRL		µg/l	2.50						
1-Methylnaphthalene	BRL		µg/l	2.50						
2-Methylnaphthalene	BRL		µg/l	2.50						
2-Methylphenol	BRL		µg/l	2.50						
3,4-Methylphenol	BRL		µg/l	5.00						
Naphthalene	BRL		µg/l	2.50						
2-Nitrophenol	BRL		µg/l	2.50						
4-Nitrophenol	BRL		µg/l	2.50						
Pentachlorophenol	BRL		µg/l	2.50						
Phenanthrene	BRL		µg/l	2.50						
Phenol	BRL		µg/l	2.50						
Pyrene	BRL		µg/l	2.50						
2,4,5-Trichlorophenol	BRL		µg/l	2.50						
2,4,6-Trichlorophenol	BRL		µg/l	2.50						
Surrogate: 2-Fluorobiphenyl	34.3		µg/l		50.0		69	30-130		
Surrogate: 2-Fluorophenol	33.3		µg/l		50.0		67	15-110		
Surrogate: Phenol-d5	25.1		µg/l		50.0		50	15-110		
Surrogate: Terphenyl-dl4	31.8		µg/l		50.0		64	30-130		
<u>LCS (8021521-BS1)</u>										
Prepared: 25-Feb-08 Analyzed: 27-Feb-08										
Acenaphthene	41.5		µg/l	2.50	50.0		83	40-140		
Acenaphthylene	39.0		µg/l	2.50	50.0		78	40-140		
Anthracene	38.8		µg/l	2.50	50.0		78	40-140		
Benzo (a) anthracene	42.1		µg/l	2.50	50.0		84	40-140		
Benzo (a) pyrene	42.1		µg/l	2.50	50.0		84	40-140		
Benzo (b) fluoranthene	46.2		µg/l	2.50	50.0		92	40-140		
Benzo (g,h,i) perylene	42.0		µg/l	2.50	50.0		84	40-140		
Benzo (k) fluoranthene	32.4		µg/l	2.50	50.0		65	40-140		
4-Chloro-3-methylphenol	41.2		µg/l	2.50	50.0		82	30-130		
2-Chlorophenol	38.7		µg/l	2.50	50.0		77	30-130		
Chrysene	40.5		µg/l	2.50	50.0		81	40-140		
Dibenzo (a,h) anthracene	41.7		µg/l	2.50	50.0		83	40-140		

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Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021521 - SW846 3510C										
<u>LCS (8021521-BS1)</u>										
Prepared: 25-Feb-08 Analyzed: 27-Feb-08										
2,4-Dichlorophenol	41.1		µg/l	2.50	50.0		82	30-130		
2,4-Dimethylphenol	37.6		µg/l	2.50	50.0		75	30-130		
4,6-Dinitro-2-methylphenol	48.1		µg/l	2.50	50.0		96	30-130		
2,4-Dinitrophenol	42.8		µg/l	2.50	50.0		86	30-130		
Fluoranthene	43.6		µg/l	2.50	50.0		87	40-140		
Fluorene	39.2		µg/l	2.50	50.0		78	40-140		
Indeno (1,2,3-cd) pyrene	42.0		µg/l	2.50	50.0		84	40-140		
1-Methylnaphthalene	40.2		µg/l	2.50	50.0		80	40-140		
2-Methylnaphthalene	39.7		µg/l	2.50	50.0		79	40-140		
2-Methylphenol	39.8		µg/l	2.50	50.0		80	30-130		
3,4-Methylphenol	42.4		µg/l	5.00	50.0		85	40-130		
Naphthalene	37.2		µg/l	2.50	50.0		74	40-140		
2-Nitrophenol	40.3		µg/l	2.50	50.0		81	30-130		
4-Nitrophenol	33.3		µg/l	2.50	50.0		67	30-130		
Pentachlorophenol	52.1		µg/l	2.50	50.0		104	30-130		
Phenanthrene	45.0		µg/l	2.50	50.0		90	40-140		
Phenol	39.9		µg/l	2.50	50.0		80	30-130		
Pyrene	40.7		µg/l	2.50	50.0		81	40-140		
2,4,5-Trichlorophenol	41.0		µg/l	2.50	50.0		82	30-130		
2,4,6-Trichlorophenol	41.4		µg/l	2.50	50.0		83	30-130		
Surrogate: 2-Fluorobiphenyl	21.4		µg/l		50.0		43	30-130		
Surrogate: 2-Fluorophenol	20.4		µg/l		50.0		41	15-110		
Surrogate: Phenol-d5	15.5		µg/l		50.0		31	15-110		
Surrogate: Terphenyl-dl4	23.1		µg/l		50.0		46	30-130		

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Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021525 - SW846 3510C										
<u>Blank (8021525-BLK1)</u>										
Prepared: 25-Feb-08 Analyzed: 26-Feb-08										
Aroclor-1016	BRL		µg/l	0.200						
Aroclor-1016 [2C]	BRL		µg/l	0.200						
Aroclor-1221	BRL		µg/l	0.200						
Aroclor-1221 [2C]	BRL		µg/l	0.200						
Aroclor-1232	BRL		µg/l	0.200						
Aroclor-1232 [2C]	BRL		µg/l	0.200						
Aroclor-1242	BRL		µg/l	0.200						
Aroclor-1242 [2C]	BRL		µg/l	0.200						
Aroclor-1248	BRL		µg/l	0.200						
Aroclor-1248 [2C]	BRL		µg/l	0.200						
Aroclor-1254	BRL		µg/l	0.200						
Aroclor-1254 [2C]	BRL		µg/l	0.200						
Aroclor-1260	BRL		µg/l	0.200						
Aroclor-1260 [2C]	BRL		µg/l	0.200						
Aroclor-1262	BRL		µg/l	0.200						
Aroclor-1262 [2C]	BRL		µg/l	0.200						
Aroclor-1268	BRL		µg/l	0.200						
Aroclor-1268 [2C]	BRL		µg/l	0.200						
Surrogate: Decachlorobiphenyl (Sr)	0.134		µg/l		0.200		67	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.142		µg/l		0.200		71	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.134		µg/l		0.200		67	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [:	0.0990		µg/l		0.200		50	30-150		
<u>LCS (8021525-BS1)</u>										
Prepared: 25-Feb-08 Analyzed: 26-Feb-08										
Aroclor-1016	2.54		µg/l	0.200	2.50		101	50-114		
Aroclor-1016 [2C]	2.48		µg/l	0.200	2.50		99	50-114		
Aroclor-1260	2.52		µg/l	0.200	2.50		101	40-127		
Aroclor-1260 [2C]	2.19		µg/l	0.200	2.50		88	40-127		
Surrogate: Decachlorobiphenyl (Sr)	0.134		µg/l		0.200		67	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.131		µg/l		0.200		66	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.134		µg/l		0.200		67	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [:	0.106		µg/l		0.200		53	30-150		
<u>LCS Dup (8021525-BSD1)</u>										
Prepared: 25-Feb-08 Analyzed: 26-Feb-08										
Aroclor-1016	2.50		µg/l	0.200	2.50		100	50-114	1	20
Aroclor-1016 [2C]	2.27		µg/l	0.200	2.50		91	50-114	9	20
Aroclor-1260	2.45		µg/l	0.200	2.50		98	40-127	3	20
Aroclor-1260 [2C]	2.29		µg/l	0.200	2.50		91	40-127	4	20
Surrogate: Decachlorobiphenyl (Sr)	0.130		µg/l		0.200		65	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.139		µg/l		0.200		70	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.133		µg/l		0.200		66	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [:	0.107		µg/l		0.200		54	30-150		
<u>Matrix Spike (8021525-MS1)</u> Source: SA74755-01										
Prepared: 25-Feb-08 Analyzed: 26-Feb-08										
Aroclor-1016	2.41		µg/l	0.211	2.63	BRL	92	50-114		
Aroclor-1016 [2C]	2.37		µg/l	0.211	2.63	BRL	90	50-114		
Aroclor-1260	2.45		µg/l	0.211	2.63	BRL	93	40-127		
Aroclor-1260 [2C]	2.77		µg/l	0.211	2.63	BRL	105	40-127		
Surrogate: Decachlorobiphenyl (Sr)	0.135		µg/l		0.211		64	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.179		µg/l		0.211		85	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.136		µg/l		0.211		65	30-150		

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Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021525 - SW846 3510C										
Matrix Spike (8021525-MS1) Source: SA74755-01										
Prepared: 25-Feb-08 Analyzed: 26-Feb-08										
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [:	0.102		µg/l		0.211		49	30-150		
Matrix Spike Dup (8021525-MSD1) Source: SA74755-01										
Prepared: 25-Feb-08 Analyzed: 26-Feb-08										
Aroclor-1016	2.45		µg/l	0.211	2.63	BRL	93	50-114	2	15
Aroclor-1016 [2C]	2.39		µg/l	0.211	2.63	BRL	91	50-114	0.9	15
Aroclor-1260	2.53		µg/l	0.211	2.63	BRL	96	40-127	3	20
Aroclor-1260 [2C]	2.82		µg/l	0.211	2.63	BRL	107	40-127	1	20
Surrogate: Decachlorobiphenyl (Sr)	0.133		µg/l		0.211		63	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.191		µg/l		0.211		90	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.133		µg/l		0.211		63	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [:	0.100		µg/l		0.211		48	30-150		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021419 - SW846 3510C										
Blank (8021419-BLK1)										
Prepared: 22-Feb-08 Analyzed: 24-Feb-08										
Non-polar material (SGT-HEM)	BRL		mg/l	1.0						
LCS (8021419-BS1)										
Prepared: 22-Feb-08 Analyzed: 24-Feb-08										
Non-polar material (SGT-HEM)	23.4		mg/l		27.4		85	81.7-90.4		
Duplicate (8021419-DUP1) Source: SA74755-01										
Prepared: 22-Feb-08 Analyzed: 24-Feb-08										
Non-polar material (SGT-HEM)	BRL		mg/l	1.0		0.5				200

Total Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021350 - SW846 3005A										
<u>Blank (8021350-BLK1)</u>										
Prepared: 22-Feb-08 Analyzed: 25-Feb-08										
Iron	BRL		mg/l	0.0550						
Chromium	BRL		mg/l	0.0080						
Cadmium	BRL		mg/l	0.0025						
Arsenic	BRL		mg/l	0.0040						
Silver	BRL		mg/l	0.0050						
<u>LCS (8021350-BS1)</u>										
Prepared: 22-Feb-08 Analyzed: 25-Feb-08										
Iron	1.81	QC2	mg/l	0.0550	1.25		145	85-115		
Silver	1.28		mg/l	0.0050	1.25		103	85-115		
Cadmium	1.34		mg/l	0.0025	1.25		107	85-115		
Arsenic	1.28		mg/l	0.0040	1.25		103	85-115		
Chromium	1.36		mg/l	0.0080	1.25		109	85-115		
<u>Duplicate (8021350-DUP1)</u> Source: SA74713-03										
Prepared: 22-Feb-08 Analyzed: 25-Feb-08										
Iron	0.212	J	mg/l	0.255		0.250			17	20
Chromium	BRL		mg/l	0.0080		BRL				20
Cadmium	BRL		mg/l	0.0025		BRL				20
Silver	BRL		mg/l	0.0050		BRL				20
Arsenic	0.0048	QR8	mg/l	0.0040		0.0062			26	20
<u>Matrix Spike (8021350-MS1)</u> Source: SA74755-01										
Prepared: 22-Feb-08 Analyzed: 25-Feb-08										
Iron	1.32		mg/l	0.0550	1.25	0.0511	101	70-130		
Chromium	1.26		mg/l	0.0080	1.25	BRL	101	70-130		
Cadmium	1.31		mg/l	0.0025	1.25	BRL	105	70-130		
Arsenic	1.34		mg/l	0.0040	1.25	BRL	107	70-130		
Silver	1.34		mg/l	0.0050	1.25	BRL	107	70-130		
<u>Post Spike (8021350-PS1)</u> Source: SA74755-01										
Prepared: 22-Feb-08 Analyzed: 25-Feb-08										
Iron	2.70		mg/l		2.50	0.102	104	85-115		
Cadmium	2.63		mg/l		2.50	-0.0015	105	85-115		
Silver	2.72		mg/l		2.50	-0.0018	109	85-115		
Arsenic	2.70		mg/l		2.50	0.0016	108	85-115		
Chromium	2.65		mg/l		2.50	0.0012	106	85-115		

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* Reportable Detection Limit

BRL = Below Reporting Limit

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021303 - General Preparation										
<u>Blank (8021303-BLK1)</u>										
Prepared & Analyzed: 20-Feb-08										
Hexavalent Chromium	BRL		mg/l	0.008						
<u>Blank (8021303-BLK2)</u>										
Prepared & Analyzed: 20-Feb-08										
Hexavalent Chromium	BRL		mg/l	0.008						
<u>LCS (8021303-BS1)</u>										
Prepared & Analyzed: 20-Feb-08										
Hexavalent Chromium	0.047		mg/l	0.008	0.0501		94	90-110		
<u>LCS (8021303-BS2)</u>										
Prepared & Analyzed: 20-Feb-08										
Hexavalent Chromium	0.049		mg/l	0.008	0.0501		98	90-110		
<u>Duplicate (8021303-DUP1)</u> Source: SA74755-01										
Prepared & Analyzed: 20-Feb-08										
Hexavalent Chromium	0.007	J	mg/l	0.008		0.006			15	20
<u>Matrix Spike (8021303-MS1)</u> Source: SA74755-01										
Prepared & Analyzed: 20-Feb-08										
Hexavalent Chromium	0.051		mg/l	0.008	0.0501	0.006	90	80-120		
<u>Reference (8021303-SRM1)</u>										
Prepared & Analyzed: 20-Feb-08										
Hexavalent Chromium	0.024		mg/l	0.008	0.0250		96	85-115		
Batch 8021304 - General Preparation										
<u>Blank (8021304-BLK1)</u>										
Prepared & Analyzed: 20-Feb-08										
Total Residual Chlorine	BRL		mg/l	0.020						
<u>Blank (8021304-BLK2)</u>										
Prepared & Analyzed: 20-Feb-08										
Total Residual Chlorine	BRL		mg/l	0.020						
<u>LCS (8021304-BS1)</u>										
Prepared & Analyzed: 20-Feb-08										
Total Residual Chlorine	0.055		mg/l	0.020	0.0500		110	90-110		
<u>LCS (8021304-BS2)</u>										
Prepared & Analyzed: 20-Feb-08										
Total Residual Chlorine	0.054		mg/l	0.020	0.0500		108	90-110		
<u>Duplicate (8021304-DUP1)</u> Source: SA74755-01										
Prepared & Analyzed: 20-Feb-08										
Total Residual Chlorine	0.048		mg/l	0.020		0.045			6	20
<u>Matrix Spike (8021304-MS1)</u> Source: SA74755-01										
Prepared & Analyzed: 20-Feb-08										
Total Residual Chlorine	0.096		mg/l	0.020	0.0500	0.045	102	80-120		
<u>Reference (8021304-SRM1)</u>										
Prepared & Analyzed: 20-Feb-08										
Total Residual Chlorine	0.116		mg/l	0.020	0.120		96	85-115		
Batch 8021348 - General Preparation										
<u>Blank (8021348-BLK1)</u>										

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* Reportable Detection Limit

BRL = Below Reporting Limit

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General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 8021348 - General Preparation										
Prepared & Analyzed: 21-Feb-08										
Total Suspended Solids	BRL		mg/l	5.00						
Blank (8021348-BLK2)										
Prepared & Analyzed: 21-Feb-08										
Total Suspended Solids	BRL		mg/l	5.00						
Blank (8021348-BLK3)										
Prepared & Analyzed: 21-Feb-08										
Total Suspended Solids	BRL		mg/l	5.00						
Duplicate (8021348-DUP1) Source: SA74654-02										
Prepared & Analyzed: 21-Feb-08										
Total Suspended Solids	205		mg/l	25.0		205			0	20
Reference (8021348-SRM1)										
Prepared & Analyzed: 21-Feb-08										
Total Suspended Solids	94.0		mg/l	10.0	90.4		104	91-109		
Reference (8021348-SRM2)										
Prepared & Analyzed: 21-Feb-08										
Total Suspended Solids	88.0		mg/l	10.0	90.4		97	91-109		
Reference (8021348-SRM3)										
Prepared & Analyzed: 21-Feb-08										
Total Suspended Solids	90.0		mg/l	10.0	90.4		100	91-109		
Batch 8021402 - General Preparation										
Blank (8021402-BLK1)										
Prepared: 21-Feb-08 Analyzed: 22-Feb-08										
Cyanide (total)	BRL		mg/l	0.0100						
LCS (8021402-BS1)										
Prepared: 21-Feb-08 Analyzed: 22-Feb-08										
Cyanide (total)	0.318		mg/l	0.0100	0.300		106	90-110		
Matrix Spike (8021402-MS1) Source: SA74713-01										
Prepared: 21-Feb-08 Analyzed: 22-Feb-08										
Cyanide (total)	0.323		mg/l	0.0100	0.300	0.0119	104	90-110		
Matrix Spike Dup (8021402-MSD1) Source: SA74713-01										
Prepared: 21-Feb-08 Analyzed: 22-Feb-08										
Cyanide (total)	0.334		mg/l	0.0100	0.300	0.0119	107	90-110	3	20
Reference (8021402-SRM1)										
Prepared: 21-Feb-08 Analyzed: 22-Feb-08										
Cyanide (total)	0.513		mg/l	0.0100	0.495		104	58.6-142.2		

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* Reportable Detection Limit

BRL = Below Reporting Limit

Notes and Definitions

QC1	Analyte out of acceptance range.
QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QR2	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QR8	Analyses are not controlled on RPD values from sample concentrations that are less than 5 times the reporting level. The batch is accepted based upon the difference between the sample and duplicate is less than or equal to the reporting limit.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Interpretation of Total Petroleum Hydrocarbon Report

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from analyses of various petroleum products. Possible match categories are as follows:

- Gasoline - includes regular, unleaded, premium, etc.
- Fuel Oil #2 - includes home heating oil, #2 fuel oil, and diesel
- Fuel Oil #4 - includes #4 fuel oil
- Fuel Oil #6 - includes #6 fuel oil and bunker "C" oil
- Motor Oil - includes virgin, waste automobile oil and hydraulic oil
- Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha
- Aviation Fuel - includes kerosene, Jet A and JP-4
- Other Oil - includes lubricating and cutting oil, and silicon oil

At times, the unidentified petroleum product is quantified using a calibration that most closely approximates the distribution of compounds in the sample. When this occurs, the result is qualified as *TPH (Calculated as).

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Validated by:
Hanibal C. Tayeh, Ph.D.
June O'Connor
Rebecca Merz



SPECTRUM ANALYTICAL, INC.
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CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- ☒ Standard TAT (7 to 10 business days)
- ☐ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: Dimitri Goumis

Invoice To: Tetra Tech LLC

Project No.: 12701003-003

Site Name: Brigham House

Location: 341 Mt. Auburn St. Watertown State: MA

Sampler(s): Dimitri Goumis

Project Mgr.: _____

P.O. No.: 12701003 RQN: _____

1=Na₂S₂O₃ 2=HCl 3=H₂SO₄ 4=HNO₃ 5=NaOH 6=Ascorbic Acid
7=CH₃OH 8=NaHSO₄ 9= NONE 10= _____

Containers:

Analyses:

QA Reporting Notes:

(check if needed)

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW=Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Preservative	# of VOC	# of An	# of Cle	# of Pla	TPH	1664	1665	1666	1667	1668	1669	1670	1671	1672	1673	1674	1675	1676	1677	1678	1679	1680	1681	1682	1683	1684	1685	1686	1687	1688	1689	1690	1691	1692	1693	1694	1695	1696	1697	1698	1699	1700	1701	1702	1703	1704	1705	1706	1707	1708	1709	1710	1711	1712	1713	1714	1715	1716	1717	1718	1719	1720	1721	1722	1723	1724	1725	1726	1727	1728	1729	1730	1731	1732	1733	1734	1735	1736	1737	1738	1739	1740	1741	1742	1743	1744	1745	1746	1747	1748	1749	1750	1751	1752	1753	1754	1755	1756	1757	1758	1759	1760	1761	1762	1763	1764	1765	1766	1767	1768	1769	1770	1771	1772	1773	1774	1775	1776	1777	1778	1779	1780	1781	1782	1783	1784	1785	1786	1787	1788	1789	1790	1791	1792	1793	1794	1795	1796	1797	1798	1799	1800	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	26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